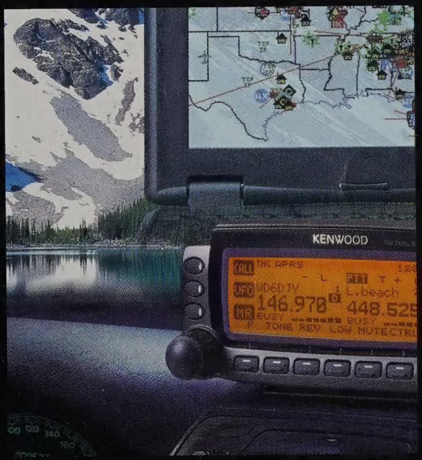
KENWOOD

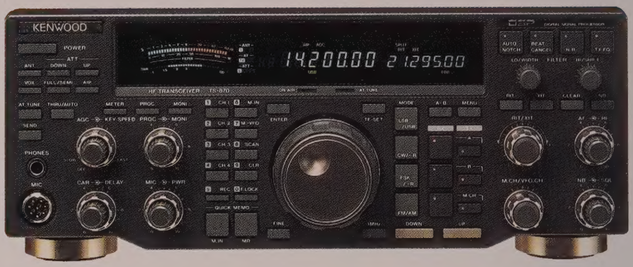
KENWOOD
USB 14.200.00
FM 145.050.00

GENERAL CATALOG

AMATEUR RADIO EQUIPMENT 2001

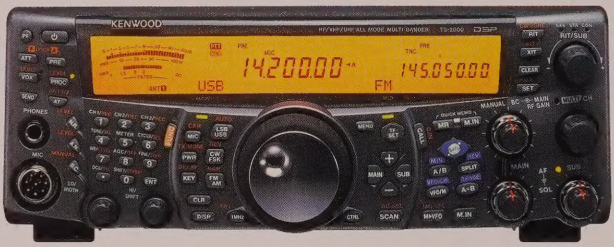

KENWOOD
TNC APRS
WD6DJY
146.970
L.beach
448.525
BUSY
TONE REV LOW MUTE CTRL

1:WD6DJY
DM13AT
30.1mi
KENWOOD
Dual
FM DUAL BANDER with TNC
POWER



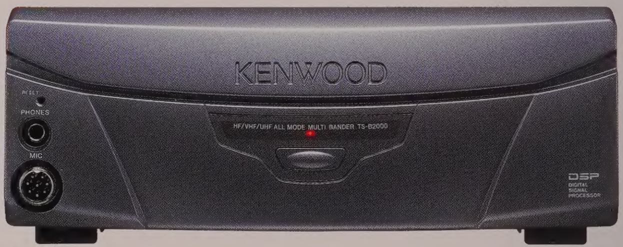
TS-870S

• 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver •IF-stage DSP (Digital Signal Processing) • DSP filters & noise reduction • Windows® control software supplied • Built-in K1 LogiKey • Built-in automatic antenna tuner • Programmable function keys



TS-2000/2000X

• All-mode multibander: HF/50/144/440MHz (+ 1200MHz[*1] with optional UT-20[*2]) in one compact rig offering up to 100W output (440MHz: 50 watts/1200MHz: 10 watts) • Dual-channel watch (sub 144/440MHz FM/AM receiver) • IF-DSP: main band (FM: AF-DSP) + AF-DSP: sub band • IF Auto Notch & AGC • AF DSP Beat Cancel, Manual Beat Cancel, NR, CW Auto Tune & TX audio shaping • Built-in TCXO • DX cluster (Packet cluster) tune • Sky Command System II Plus • 1200/9600bps simple TNC for DX cluster & Sky Command System II Plus • Satellite Communications (HF to 1200MHz: ALL MODE) • 300 memory channels (plus 1 call channel for each band) • Automatic antenna tuner (1.9-50MHz) • Antenna terminal for HF low-band RX • Programmable function keys • Transverter • Auto simplex checker • Auto repeater offset • Backlit front keys • ARCP-2000 radio control software (option) • Optional RC-2000 mobile controller available for mobile use



TS-B2000

• All-mode multibander: HF/50/144/440MHz (+ 1200MHz with optional UT-20[*2]) in one compact rig offering up to 100W output (440MHz: 50 watts/1200MHz: 10 watts) and ARCP-2000 radio control software (supplied) • Optional RC-2000 mobile controller available for mobile use • Dual-channel watch (sub 144/440MHz FM/AM receiver)• IF-DSP: main band (FM: AF-DSP) + AF-DSP: sub band • IF Auto Notch & AGC • AF DSP Beat Cancel, Manual Beat Cancel, NR, CW Auto Tune & TX audio shaping • Built-in TCXO • DX cluster (Packet cluster) tune • Sky Command System II Plus • 1200/9600bps simple TNC for DX cluster & Sky Command System II Plus • Satellite Communications (HF to 1200MHz: ALL MODE) • 300 memory channels (plus 1 call channel for each band) • Automatic antenna tuner (1.9-50MHz) • Antenna terminal for HF low-band RX • Transverter • Auto simplex checker • Auto repeater offset

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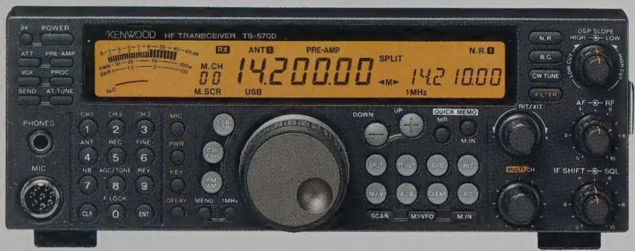
* 1 Built-in for TS-2000X * 2 Service center installation only. Contact an authorized dealer for details.

HF /All-Mode Transceivers

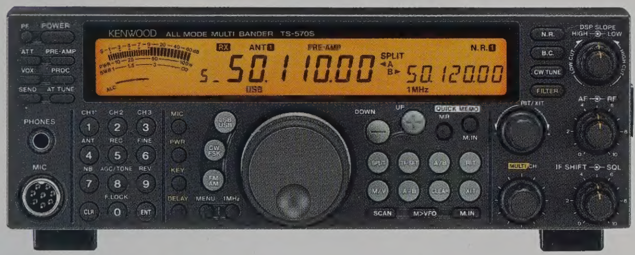
	TS-2000/TS-2000X/TS-B2000		TS-870S
Transmitter Frequency Range*	Main: 160, 80, 40, 30, 20, 17, 15, 12, 10, 6, 2 meter bands, 70, 23 (TS-2000X only) cm bands	Sub: 2 meter band, 70cm band	160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands
Receiver Frequency Range	Main: (0.03) 0.5 ~ 30 MHz, (30) 50 ~ 54 (60) MHz, (142) 144 ~ 148 (152) , (420) 430 ~ 450 MHz, 1240 ~ 1300 MHz (TS-2000X only)	Sub: (118) 144 ~ 148(174) MHz, (220) 438 ~ 450 (512) MHz * *Figures in parenthesis ( ) indicate VFO coverage range*	100 kHz ~ 30 MHz
Mode	A1A (CW), J3E (SSB), A3E (AM), F3E (FM), F1D (FSK), F2D		J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)
Output Power (without antenna tuner)	SSB/CW/FM/FSK=100W, AM=25W (HF, 6m, 2m), SSB/CW/FM/FSK=50W, AM=12.5W (70cm) SSB/CW/FM/FSK=10W, AM=2.5W (23cm)		SSB/CW/FM/FSK: 100 W, AM: 25 W
Selectivity	Main: SSB (Low: 300 Hz, Hi: 2600 Hz) More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (Low:100 Hz, Hi:3000 Hz) More than 6.0 kHz (-6 dB), Less than 12.0 kHz (-50 dB) FM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB) FM (Narrow) More than 8.0 kHz (-6 dB), Less than 20.0 kHz (-50 dB)	Sub: AM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB) FM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB)	SSB: 2.3 kHz (-6 dB), 3.3 kHz (-60 dB) CW: 200 Hz (-6 dB), 450 Hz (-60 dB) FSK: 500 Hz (-6 dB), 1.0 kHz (-60 dB) AM: 9 kHz (-6 dB), 12 kHz (-60 dB) FM: 14 kHz (-6 dB), 18 kHz (-60 dB)
Sensitivity [at 10 dB (S/N)] (0 dBu = 1 µV)	Main: SSB/CW/FSK Less than 4 µV (500 kHz ~ 1.705 MHz), Less than 0.2 µV (1.705 ~ 24.5 MHz), Less than 0.13 µV (24.5 ~ 30 MHz), Less than 0.13 µV (50 ~ 54 MHz), Less than 0.16 µV (144 ~ 148 MHz), Less than 0.11 µV (430 ~ 450 MHz), Less than 0.11 µV (1240 ~ 1300MHz), AM Less than 31.6 µV (500 kHz ~ 1.705 MHz), Less than 2 µV (1.705 ~ 24.5 MHz), Less than 1.3 µV (24.5 ~ 30 MHz), Less than 1.3 µV (50 ~ 54 MHz), Less than 1.4 µV (144 ~ 148 MHz), Less than 1.0 µV (430 ~ 450 MHz), Less than 1.0 µV (1240 ~ 1300MHz)	Main (continued): FM (12 dB SINAD) Less than 0.22 µV (28 ~ 30 MHz), Less than 0.22 µV (50 ~ 54 MHz), Less than 0.25 µV (144 ~ 148 MHz), Less than 0.18 µV (430 ~ 450 MHz), Less than 0.18 µV (1240 ~ 1300MHz) Sub: AM Less than 2.25 µV (144 ~ 148 MHz), Less than 1.55 µV (438 ~ 450 MHz) FM (12 dB SINAD) Less than 0.40 µV (144 ~ 148 MHz), Less than 0.28 µV (438 ~ 450 MHz)	SSB/CW/FSK: Less than 1 µV (100 ~ 500 kHz), 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 28 MHz), 0.13 µV (28 ~ 30 MHz) AM: Less than 2 µV (100 ~ 500 kHz), 31.6 µV (500 kHz ~ 1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 2 µV (24.5 ~ 28 MHz), 2 µV (28 ~ 30 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz)
Dimensions, projections not included (W x H x D)	270 x 96 x 317 mm (TS-2000/TS-2000X),270 x 96 x 317 mm (TS-B2000) (10-5/8 x 3-3/4 x 12-1/2 inch) (10-5/8 x 3-3/4 x 12-1/2 inch)		330 x 120 x 334 mm (12.99 x 4.72 x 13.15 inch)

*Specifications are guaranteed for amateur bands



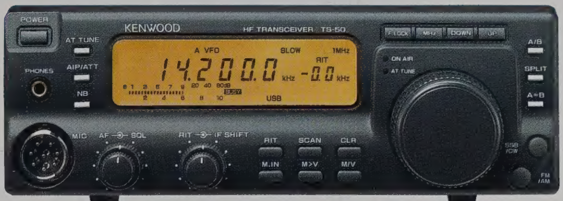
TS-570D(G)

• 160m to 10m amateur band operation, 500kHz to 30MHz general coverage receiver • 16-bit AF-stage DSP (Digital Signal Processing) • Digital filtering with 3 new CW DSP filters • Adjustable TX sound quality & NR1 noise reduction system • World's first CW auto tune • Built-in preset auto antenna tuner • Programmable function keys • Mobile/fixed station size • Free RCP-2 control software available on the Internet (TS-570D only)



TS-570S(G)

• 160m to 10m plus 6m amateur band operation, 500kHz to 30MHz plus 50 to 54MHz general coverage receiver • 100-watt output on all bands (SSB/CW/FM/FSK) • 16-bit AF-stage DSP (Digital Signal Processing) • Digital filtering with 3 new CW DSP filters • Adjustable TX sound quality & NR1 noise reduction system • World's first CW auto tune • Built-in preset auto antenna tuner • Programmable function keys • Mobile/fixed station size • Free RCP-2 control software available on the Internet (TS-570S only)



TS-50S

• Super-compact, 100-watt, 160m to 10m transceiver, 500kHz to 30MHz general coverage receiver • DDS (Direct Digital Synthesizer) with "fuzzy logic" control • AIP system • 100 memory channels • CW reverse • Menu system

VISUAL COMMUNICATOR

VC-H1

• Portable SSTV unit • 1/4- inch, 270,000-pixel CCD camera • 360-degree rotatable and detachable camera head • 1.8-inch TFT color LCD monitor • Up to 10-picture memory • Built-in microphone and speaker • Connect to a Kenwood handheld, mobile or HF transceiver with an optional cable • Computer connectivity with an optional connection kit (KCT-24S) • Power supply: AA alkaline batteries (4)

TS-570D(G)	TS-570S(G)	TS-50S
160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10, 6 meter amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands
500 kHz ~ 30 MHz	500 kHz ~ 30 MHz, 50 ~ 54 MHz	500 kHz ~ 30 MHz
J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F3E (FM), A3E (AM)
SSB/CW/FM/FSK: 100 W, AM: 25 W	SSB/CW/FM/FSK: 100 W, AM: 25 W	SSB/CW/FM: 100 W, AM: 25 W
SSB/CW/FSK: More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (wide mode): More than 4 kHz (-6 dB), Less than 20 kHz (-50 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)	SSB/CW/FSK: More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (wide mode): More than 4 kHz (-6 dB), Less than 20 kHz (-50 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)	SSB/CW: More than 2.2 kHz (-6 dB), Less than 4.8 kHz (-60 dB) AM: More than 5 kHz (-6 dB), Less than 40 kHz (-60 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)
SSB/CW/FSK: Less than only. 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 30 MHz) AM: Less than 31.16 µV (500 kHz ~1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 1.3 µV (24.5 ~ 30 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz)	SSB/CW/FSK: Less than 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 30 MHz), 0.13 µV (50 ~ 54 MHz) AM: Less than 31.16 µV (500 kHz ~1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 1.3 µV (24.5 ~ 30 MHz), 1.3 µV (50 ~ 54 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz), 0.25 µV (50 ~ 54 MHz)	SSB/CW: Less than 0.25 µV (500 kHz ~ 1.5 MHz), 0.35 µV (1.5 ~ .1.7 MHz), 0.25 µV (1.7 ~ 30 MHz) AM: Less than 2.5 µV (500 kHz ~ 1.5 MHz), 3.5 µV (1.5 ~ 1.7 MHz), 2.5 µV (1.7 ~ 30 MHz) FM (12 dB SINAD): Less than 0.5 µV (28 ~ 30 MHz)
270 x 96 x 271 mm (10.63 x 3.78 x 10.67 inch)	270 x 96 x 271 mm (10.63 x 3.78 x 10.67 inch)	179 x 60 x 233 mm (7.06 x 2.38 x 9.12 inch)

Visual Communicator

	VC-H1
Terminals	Data I/O (for transceiver), Video in, Video out, COM (for computer), DC IN (6.0V)
CCD camera	1/4" CCD (270,000 pixels), Resolution: 512 x 492 pixels f = 4.6m/m, Focus: 50 cm ~ ∞ (19.7" ~ ∞), Aperture: auto, White balance: auto
Monitor	1.8" TFT color LCD
Dimensions, projections not included (W x H x D)	62 x 160 x 30 mm (2.4 x 6.3 x 1.2 inch)

TM-D700A

• 144MHz/440MHz dual-band operation • Dual receive on same band • Extra-large multifunction display • Built-in 1200/9600bps TNC compatible with AX.25 protocol • APRS® capability • Kenwood Skycommand System (KSS) II • VC-H1 connectivity (compatible with FAST FM mode) • DX cluster monitoring • Built-in DCS, CTCSS & 1750 tone burst • PC programmable • Cross-band & fixed-band repeater operation • Audible key operation and call sign announcement (requires VS-3) • Microphone with large backlit keys

TM-742A(D)

• 144MHz/440MHz dual-band operation • Four band options to choose for tri-band operation: UT-28S, 28MHz, 50W; UT-50S, 50MHz, 50W; UT-220S, 220MHz, 25W; and UT-1200, 1.2GHz, 10W • Dual/triple receive • Microphone with large backlit keys • 101 memory channels per band • Detachable display and control panels (opt.)

TM-642A(D)

• 144MHz/220MHz dual-band operation • Four band options to choose for tri-band operation: UT-28S, 28MHz, 50W; UT-50S, 50MHz, 50W; UT-440S, 440MHz, 35 W; and UT-1200, 1.2GHz, 10W • Dual/triple receive • Microphone with large backlit keys • 101 memory channels per band • Detachable display and control panels (opt.)

TM-V7A

• 144MHz/440MHz dual-band operation • Dual receive on same band • Large, cool-blue reversible LCD • Quick-release detachable front panel display • "5-in-1" programmable memory • 280 multi-function memory channels • 147-channel visual scan with pause • DTSS selective calling with page • CTCSS encoder/decoder • 1200/9600bps packet terminal • Microphone with large backlit keys • PC programmable

FM Mobile Transceivers

	TM-D700A	TM-742A(D)	TM-642A(D)	TM-V7A
Frequency Range*	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 470 MHz TX (SUB UHF): 430 ~ 450 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 136 ~ 175 MHz 300 ~ 524 MHz 800 ~ 1300 MHz TX (SUB VHF): 144 ~ 148 MHz (excluding cellular + frequencies)	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 438 ~ 450 MHz RX: 410 ~ 470 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 220 MHz: TX: 222 ~ 225 MHz RX: 215 ~ 235 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 410 ~ 470 MHz
Mode	F1D, F2D, F3E, A3E (VHF band)	F3E (FM)), A3E (AM) [RX only]	F3E (FM), A3E (AM) [RX only]	F3E (FM), A3E (AM) [VHF main band RX only]
Current Drain	Transmit: HI (50 W/VHF, 35W/UHF) Less than 11.5 A (VHF), 10.0 A (UHF) MID (10W) Less than 5.5 A (VHF), 6.5 A (UHF) LOW (5W) Less than 4.0 A (VHF), 5.0 A (UHF) Receive: Less than 1.0 A (VHF/UHF)	Transmit: Less than 11.5 A (144 MHz/13.8V DC) Less than 10 A (440 MHz /13.8V DC) Receive: Less than 1.2 A (13.8V DC)	Transmit: Less than 11.5 A (144 MHz/13.8V DC) Less than 7 A (220 MHz /13.8V DC) Receive: Less than 1.2 A (13.8V DC)	Transmit: Less than 11 A (144 MHz) Less than 10 A (440 MHz) Receive: Less than 1 A
Operating Temperature	-20 °C~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)
RF Output Power	144 MHz: HI = 50 W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 440 MHz: HI = 35W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 220 MHz: HI = 25W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.
Spurious Radiation	Less than –60 dB	Less than -60 dB	Less than -60 dB	Less than -60 dB
Selectivity	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	Less than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	Less than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)
Sensitivity (12 dB SINAD)	Less than 0.16 µV (VHF/UHF)	Less than 0.16 µV	Less than 0.16 µV (144 MHz)/0.18 µV (220 MHz)	Less than 0.16 µV
Squelch Sensitivity	Less than 0.1 µV (VHF/UHF)	Less than 0.1 µV	Less than 0.1 µV	Less than 0.1 µV
Audio Output Level	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)
External Speaker Impedance		8 Ω	8 Ω	8 Ω
Microphone Impedance		2 kΩ	2 kΩ	600 Ω
Dimensions (W x H x D) {projections not included}	140 x 40 x 195 mm [Body] (5.51 x 1.58 x 7.68 inch) 140 x 60 x 33.3 mm [Panel] (5.51 x 2.36 x 1.31 inch)	150 x 50 x 175 mm (5.91 x 1.97 x 6.89 inch)	150 x 50 x 175 mm (5.91 x 1.97 x 6.89 inch)	140 x 40 x 189 mm (5.52 x 1.58 x 7.45 inch)

*Specifications are guaranteed for amateur bands only.

TM-G707A

• 144MHz/440MHz dual-band operation • Wide band receive • High-visibility amber LCD showing up to 7 large alphanumeric characters • Easy Operation mode • Quick-release detachable front panel display • "5-in-1" programmable memory • 180 multi-function memory channels • Memory Name function • CTCSS encoder/decoder • 1200/9600bps packet terminal • Microphone with large backlit keys • PC programmable • Excellent intermodulation rejection

TM-331A

• 220MHz single-band operation • 20 memory channels with multi-scan functions • Auto repeater offset (+ 1.6MHz) • Multi-function microphone supplied

TM-541A

• 1200MHz single-band operation • 10W RF power output • Easy-to-read, easy-to-operate illuminated keys plus large LCD • Microphone with large backlit keys • 20 multi-function memory channels plus call channel • Selectable CTCSS tone encoder (decoder optional) • ALT (Automatic Lock Tuning) function

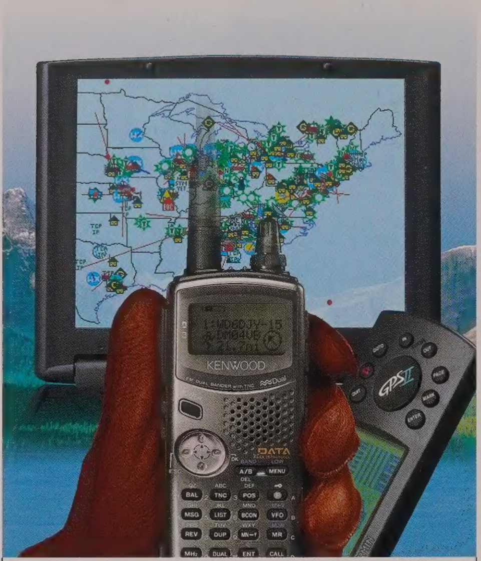
TM-261A

• 144MHz single-band operation • 62 multi-function memory channels with split channel memory • Meets MIL-STD for vibration and shock • Memory Name function with 6 digits Alphanumeric Display • Menu system • Selectable CTCSS tone encoder • Microphone with large backlit keys • Wireless cloning function

TM-461A

• 440MHz single-band operation • 62 multi-function memory channels with split channel memory • Meets MIL-STD for vibration and shock • Memory Name function with 6 digits Alphanumeric Display • Menu system • Selectable CTCSS tone encoder • Microphone with large backlit keys • Wireless cloning function

TM-G707A	TM-331A	TM-541A	TM-261A	TM-461A
144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 410 ~ 524 MHz	220 MHz: TX: 222 ~ 225 MHz RX: 215 ~ 230 MHz	1200 MHz: 1240 ~ 1300 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz	440 MHz: TX: 438 ~ 450 MHz RX: 400 ~ 470 MHz
F3E (FM)	F3E (FM)	F3E (FM)	F3E (FM), A3E (AM) [RX only]	F3E (FM)
Transmit: HI Less than 11 A (144 MHz) Less than 10 A (440 MHz) MID Less than 5.5 A (144 MHz) Less than 6.5 A (440 MHz) LO Less than 4 A (144 MHz) Less than 5 A (440 MHz) Receive: Less than 1 A	Transmit: Less than 10 A Receive: Less than 600 mA	Transmit: HI Less than 6 A Receive: No signal Less than 600 mA	Transmit: Less than 11 A Receive: Less than 600 mA	Transmit: Less than 10 A Receive: Less than 600 mA
-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)
144 MHz: HI = 50W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.	HI = 25W MID = 10W LO = 5W approx.	HI = 10W LO = 1W approx.	HI = 50W MID = 10W LO = 5W approx.	HI = 35W MID = 10W LO = 5W approx.
Less than -60 dB	Less than -60 dB	Less than -50 dB	Less than -60 dB	Less than -60 dB
More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 36 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)
Less than 0.22 μV (VHF)/0.16 μV (UHF)	Less than 0.16 μV	Less than 0.16 μV	Less than 0.16 μV	Less than 0.16 μV
Less than 0.11 μV (VHF)/0.1 μV (UHF)	Less than 0.1 μV	Less than 0.1 μV	Less than 0.1 μV	Less than 0.1 μV
More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)
8 Ω	8 Ω	8 Ω	8 Ω	8 Ω
600 Ω	500 ~ 600 Ω	500 ~ 600 Ω	600 Ω	600 Ω
140 x 40 x 189 mm (5.52 x 1.58 x 7.45 inch)	140 x 40 x 160 mm (5.51 x 1.57 x 6.30 inch)	140 x 40 x 160 mm (5.51 x 1.57 x 6.30 inch)	140 x 40 x 160.5 mm (5.51 x 1.57 x 6.31 inch)	140 x 40 x 160.5 mm (5.51 x 1.57 x 6.31 inch)



TH-D7A

• 144/440MHz dual-band operation • DATA COMMUNICATOR; built-in 1200/9600bps TNC, APRS operation, VC-H1 control • Kenwood Sky Command System (KSS) II for remote control of a TS-570S/D(G) or TS-870S • TM-742A(D)/TM-V7A DTMF remote control • Dual receive on same band V + V (VHF only) for both voice and data* • Large dot-matrix LCD (12 digits x 3 lines), multi-scroll key, menu mode • 200 memory channels with 8-character memory name input • Backlit keys • Built-in CTCSS • DTMF memory (10 ch. up to 16 digits) • MIL-STD 810C/D/E water resistance • High-gain dual band antenna

* Not applicable for dual receive of data and data.

TH-79AKSS

• 144/440MHz dual-band operation • Kenwood Sky Command System to control a TS-570S/D(G) • MOS FET power module • Dot-matrix LCD, guide function & menu system for easy operation • Dual receive on same band • Wide-range flexible antenna • 82 non-volatile memory channels in E^2PROM • ID memory & DTMF memory • Memory channel lock-out • Built-in CTCSS encode/decode • Cross-band repeater function • Wireless cloning function

TH-22AT

• 144MHz single-band operation • MOS FET power module • Built-in Luminescent DTMF keypad • 40 memory channels in E^2PROM (plus 1 call channel) • Multiple scan functions (VFO, call & memory) • Dual scan stop modes (CO & TO) • Wireless cloning function

TH-42AT

• 440MHz single-band operation • MOS FET power module• Built-in Luminescent DTMF keypad • 40 memory channels in E^2PROM (plus 1 call channel) • Multiple scan functions (VFO, call & memory) • Dual scan stop modes (CO & TO) • Wireless cloning function

TH-G71A

• 144/440MHz dual-band operation • 6W (VHF), 5.5W (UHF) at 13.8V DC • PC programmable • 200 memory channels with alphanumeric display • MIL-STD 810E (rain & shock) • CTCSS tone scan • Wide-range coverage (incl. aircraft receive) • DTMF memory (10 ch. up to 16 digits) • Multiple scan modes • Key illumination & backlit display • High-performance antenna • Selectable HI/LOW/EL power output • TM-V7A DTMF remote control • Excellent inter-modulation rejection • Powerful audio output

UBZ-LH14

FreeTalk®

• 14 channels • 38 talk groups (CTCSS) • CORDS (Communication Range Detection System) • Privacy Talk • Auto Channel Select • Large display with icons • Push-button ease-of-operation • Available in Platinum, Yellow, Black • Dimensions, projections not included (W x H x D): 2-1/4 x 4-1/8 x 1.0 in.

UBZ-GM14

FreeTalk® WX

• 14 FRS + 10 weather channels • 38 talk groups (CTCSS) • 500mW output power • Automatic backlit LCD display • Audible low-battery warning tone • Dimensions, projections not included (W x H x D): 2.24 x 4.25 x 1.34 in.

UBZ-AM14

FreeTalk® EL

• 14 FRS channels • 38 talk groups (CTCSS)• 500mW output power • 32-step digital volume control • Battery saver function • Available in Blue, Black • Dimensions, projections not included (W x H x D): 2.22 x 3.73 x 1.19 in.

FM Handheld Transceivers

	TH-D7A	TH-79AKSS	TH-G71A	TH-22AT	TH-42AT	UBZ-LH14/GM14/AM14
Frequency Range*	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 400 ~ 480 MHz 144 ~ 148 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz, 438 ~ 450 MHz 440 MHz: TX: 438 ~ 450 MHz RX: 136 ~ 174 MHz, 438 ~ 450 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 400 ~ 470 MHz	144 MHz: TX: 144 ~ 147.995 MHz RX: 136 ~ 173.995 MHz	440 MHz: TX: 438 ~ 449.995 MHz RX: 438 ~ 449.995 MHz	462.5625 ~ 467.7125 MHz
Mode	F1D, F2D, F3E (FM) A3E (AM: RX 118~136 MHz only)	F3E (FM) A3E (AM: RX 118~136 MHz only)	F3E (FM)	F3E (FM)	F3E (FM)	F3E (FM)
RF Output Power	HI: 6W approx. (13.8V DC, 144 MHz) 5.5W approx. (13.8V DC, 440 MHz) 5W approx. (PB-39) 2.5W approx. (144 MHz, PB-38/BT-11) 2.2W approx. (440 MHz, PB-38/BT-11) LO: 0.5W approx. EL: 50mW approx.	HI: 5W approx. (13.8V DC/PB-34) 2.7W approx. (144 MHz; PB-32/33) 2.0W approx. (440 MHz; PB-32/33) LO: 0.5W approx. EL: 30mW approx.	HI: 6W approx. (13 .8V DC, 144 MHz) 5.5W approx. (13.8V DC, 440 MHz) 5W approx. (PB-39) 2.5W approx. (144 MHz, PB-38/BT-11) 2.2W approx. (440 MHz, PB-38/BT-11) LO: 0.5W approx. EL: 50mW approx.	HI: 5W approx. (13.8V DC/ PB-34) 3W approx. (PB-32/33) LO: 0.5W approx. EL: 30mW approx.	HI: 5W approx. (13.8V DC/PB-34) 2.5W approx. (PB-32/33) LO: 0.5W approx. EL: 30mW approx.	500 mW
Selectivity	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	
Sensitivity (12 dB SINAD)	Less than 0.18 µV (main band) Less than 0.28 µV (sub band)	Less than 0.16 µV (144 MHz) Less than 0.18 µV (440 MHz) Less than 0.25 µV (sub band)	Less than 0.18 µV	Less than 0.16 µV	Less than 0.18 µV	Less than 0.4 µV
Dimensions, projections not included (W x H x D)	54 x 119.5 x 33.5 mm (2.13 x 4.7 x 1.32 inch) with PB-38	56 x 129.5 x 24.5 mm (2.2 x 5.1 x 1.0 inch) with PB-32	54 x 112 x 33.5 mm (2.13 x 4.4 x 1.32 inch) with PB-38	56 x 116.5 x 24.5 mm (2.2 x 5.7 x 1.0 inch)	56 x 116.5 x 24.5 mm (2.2 x 5.7 x 1.0 inch)	

*Specifications are guaranteed for amateur bands only.

Optional Accessories

HF Transceivers

	ARCP-2000 Radio Control Program	**AT-50** Automatic Antenna Tuner	**DRU-3A** Digital Recording Unit	**HS-5** Deluxe Headphones	**HS-6** Small Headphones	**IF-10D** Interface Unit	**KPS-15** DC Switching Power Supply	**LF-30A** Low-Pass Filter	**MB-430B** Mobile Mount	**MC-43S** Hand Microphone	**MC-47** Multi-Function Microphone (8-pin)	**MC-52DM** Hand Microphone with DTMF
TS-2000/2000X	●		●	●	●		●	●	●	●	●	●
TS-B2000	Supplied		●	●	●		●	●	●	●	●	●
TS-870S				●	●		●	●		●		●
TS-570D(G)			●	●	●		●	●	●	●	●	●
TS-570S(G)			●	●	●		●	●	●	●	●	●
TS-50S	●	●		●[1]	●[1]	●[2]	●	●		●	●	●

	MC-60A Deluxe Desktop Microphone	**MC-80** Desktop Microphone	**MC-90** DSP-Compatible Desktop Microphone	**PG-2Y** DC Cable (4m)	**PG-2Z** DC Cable (2m)	**PG-4M** Control Cable for AT-50 (6m)	**PS-52** Heavy Duty Power Supply (22.5A)	**PS-53** Heavy Duty Power Supply (22.5A)	**RC-2000** Mobile Controller	**SO-2** Superior Stability TCXO	**SP-23** External Speaker	**SP-31** External Speaker
TS-2000/2000X	●	●	●		●			●	●	Built-in[4]	●	
TS-B2000	●	●	●		●			●	●	Built-in[4]	●	
TS-870S	●	●	●		●		●			●		●
TS-570D(G)	●	●	●		●			●		●	●	
TS-570S(G)	●	●	●		●			●		●	●	
TS-50S	●	●		●	●	●	●[3]	●[3]		●	●[5]	

	SP-50B Mobile Speaker	**UT-20** 1200MHz All-Mode Unit	**VS-2** Voice Synthesizer Unit	**VS-3** Voice Synthesizer Unit	**YG-455CN-1** 250Hz CW Narrow Filter for 455kHz IF	**YK-88C-1** 500Hz CW Filter for 8.83MHz IF	**YK-88CN-1** 270Hz CW Filter for 8.83MHz IF	**YK-88SN-1** 1.8kHz SSB Narrow Filter for 8.83MHz IF	**YK-107C** 500Hz CW Filter
TS-2000/2000X	●	●[6, 7]		●					
TS-B2000	●	●[6]		●					
TS-870S			●		Built-in IF filter[8]	Built-in IF filter[8]	Built-in IF filter[8]	Built-in IF filter[8]	
TS-570D(G)	●			●		●	●	●	
TS-570S(G)	●			●		●	●	●	
TS-50S	●								●

**1 Needs plug-adaptor *2 Works with IF-232C *3 When using AT-50 *4 Of equivalent quality *5 Height does not match *6 Service center installation only. Contact an authorized dealer for details. *7 Built-in for TS-2000X *8 Built-in Digital IF Filter, TS-870S model does not require IF filter options*

FM Mobile Transceivers

	DFK-3 Detachable Front Panel Cable (9.9ft/3m)	**DFK-3C** Detachable Front Panel Cable (9.9ft/3m)	**DFK-4** Detachable Front Panel Kit (13.2ft/4m)	**DFK-4C** Detachable Front Panel Kit (13.2ft/4m)	**DFK-7** Detachable Front Panel Kit (23.1ft/7m)	**DFK-7C** Detachable Front Panel Kit (23.1ft/7m)	**KPS-15** DC Switching Power Supply	**MB-14** Mobile Mount	**MB-201** Mobile Mount	**MC-53DM** Backlit DTMF Microphone	**MC-60A** Deluxe Desktop Microphone	**MC-80** Desktop Microphone
TM-D700A							●			Supplied	Requires MJ-88	Requires MJ-88
TM-742A(D)	●		●		●		●	●		Supplied	Requires MJ-88	Requires MJ-88
TM-642A(D)	●		●		●		●	●		Supplied	Requires MJ-88	Requires MJ-88
TM-V7A		●		●		●	●		●*	Supplied	Requires MJ-88	Requires MJ-88
TM-G707A		●		●		●	●		●*	Supplied	Requires MJ-88	Requires MJ-88
TM-261A							●		●	Supplied	Requires MJ-88	Requires MJ-88
TM-461A							●		●	Supplied	Requires MJ-88	Requires MJ-88
TM-331A							●		●		●	●
TM-541A							●		●		●	●

	MJ-88 Microphone Plug Adapter	**PG-2N** Power Cable	**PG-3B** DC Line Noise Filter	**PG-4S** PC Connection Cable	**PG-4T** VC-H1 Mobile Transceiver Connection Cable	**PG-4X** Extension Cable Kit	**PG-5A** Data Cable	**SP-50B** Mobile Speaker	**TSU-7** CTCSS Unit	**TSU-8** CTCSS Unit	**VC-H1** Interactive Visual Communicator	**VS-3** Voice Synthesizer Unit
TM-D700A	●	●	●		●	●	●	●		Built-in	●	●
TM-742A(D)	●	●	●					●	●			
TM-642A(D)	●	●	●					●	●			
TM-V7A	●	●	●	●	●		●	●		Built-in	●	●
TM-G707A	●	●	●	●	●		●	●		Built-in	●	●
TM-261A	●	●	●					●		●		
TM-461A	●	●	●					●		●		
TM-331A		●	●					●				
TM-541A		●	●					●				

	UT-50S 50MHz FM Unit	**UT-220S** 220MHz FM Unit	**UT-440S** 440MHz FM Unit	**UT-1200** 1200MHz FM Unit
TM-D700A				
TM-742A(D)	●	●		●
TM-642A(D)	●		●	●
TM-V7A				
TM-G707A				
TM-261A				
TM-461A				
TM-331A				
TM-541A				

** Certain restrictions on installation*

Optional Accessories

FM Handheld Transceivers

	BT-9 Battery Case	**BT-11** Battery Case	**EMC-3** Clip Microphone with Earphone	**HMC-3** Headset with VOX/PTT	**KSC-8A** Compact Charger	**KSC-14** Rapid Charger	**BC-19** Rapid Charger	**PB-32** Standard Battery Pack	**PB-33** Long-Life Battery Pack	**PB-34** High-Power Battery Pack	**PB-38** Standard Battery Pack	**PB-39** High-Power Battery Pack
TH-D7A		●	●	●			●				●	●
TH-79AKSS	●		●	●	●	●		●	●	●		
TH-G71A		●	●	●			●				●	●
TH-22AT	●		●	●	●	●		●	●	●		
TH-42AT	●		●	●	●	●		●	●	●		
UBZ-LH14			●	●								
UBZ-GM14			●	●								

	PG-2W DC Cable	**PG-3J** Filtered Cigar Lighter Cord	**PG-4P** MCP Interface Cable	**PG-4R** Sky Command™ Adapter	**PG-4V** VC-H1 Connection Cable	**PG-4W** PC Connection Cable (with PC Software & In-depth Manual)	**SB-2A** Arm Band	**SB-3** Neck Strap	**SC-41** Soft Case (PB-32)	**SC-43** Soft Case (PB-34, 33)	**SC-45** Soft Case	**SC-47B** Nylon Case (Black)
TH-D7A	●	●		●	●	●						●
TH-79AKSS	●	●		●					●	●		
TH-G71A	●	●	●								●	
TH-22AT	●	●										
TH-42AT	●	●										
UBZ-LH14							●	●				
UBZ-GM14												

	SC-47OR Nylon Case (Orange)	**SMC-32** Speaker Microphone	**SMC-33** Remote Control Speaker Microphone	**SMC-34** Speaker Mic with 3 Function Keys & Volume Control	**TSU-8** CTCSS Unit	**UBC-3** Desktop Charger	**UBC-4** Charger	**UPB-2** NiCd Battery Pack	**USC-5B** Soft Case (Black)	**USC-5C** Soft Case (Camouflage)	**USC-5Y** Soft Case (Yellow)	**USC-8B** Nylon Case (Black)
TH-D7A	●	●	●	●	Built-in							
TH-79AKSS		●	●	●	Built-in							
TH-G71A		●	●	●								
TH-22AT		●	●	●	●							
TH-42AT		●	●	●	●							
UBZ-LH14				●		●		●	●	●	●	
UBZ-GM14				●			●	●				●

	VC-H1 Interactive Visual Communicator	**WR-2** Water Resistant Bag
TH-D7A	●	●
TH-79AKSS	●	●
TH-G71A	●	
TH-22AT	●	●
TH-42AT	●	●
UBZ-LH14	●	
UBZ-GM14		

Visual Communicator

	KCT-24S PC Connection Kit	**PG-4T** VC-H1 Mobile Transceiver Connection Cable	**PG-4V** VC-H1 Connection Cable	**SC-46P** Protective Case
VC-H1	●	●	●	●

Not all accessories may be available, please contact dealers for details.

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to advances in technology.

KENWOOD reserves the right to add or delete models or products without notice to maintain its competitive position in the market.

Products included in this catalog are products that were a part of KENWOOD's product line as of the date of this printing.

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Communications Equipment Division
Kenwood Corporation
ISO9001 certification

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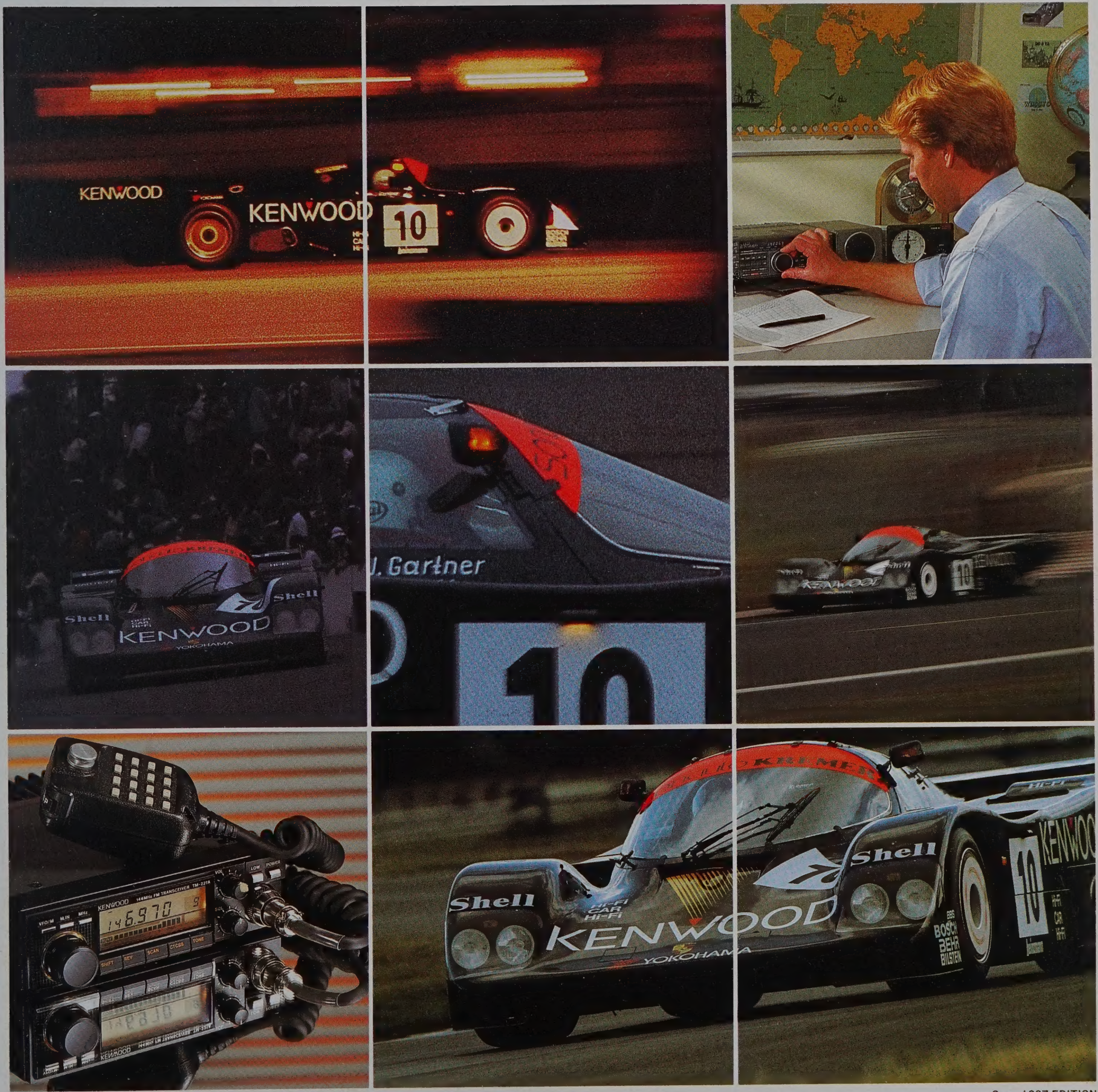
KENWOOD

AMATEUR RADIO EQUIPMENT

General Catalog


KENWOOD
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Sep., 1987 EDITION

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KENWOOD is a multi-national high-technology company whose annual sales are measured in the hundreds of millions of dollars. Founded in 1946, KENWOOD has since grown to be recognized all over the world as a producer of the highest quality, most technologically advanced electronic products. These products are a testimonial to its manufacturing versatility, and include a broad range of Amateur radio equipment, land mobile transceivers and signalling products, home video equipment, home and automotive stereo sound products, satellite receiving equipment, and a complete line of electronic test equipment, including state-of-the-art wide-band oscilloscopes.

It was in the mid-1970's that the KENWOOD line of Amateur radio products began to assert a position of leadership in the highly competitive field of Amateur transmitting and receiving equipment sales. Its products soon earned a reputation for quality and dependability in performance, while, at the same time, incorporating the most advanced electronic circuit designs. KENWOOD's engineering know-how that made possible king-size performance in ultra-compact products soon caught the attention of radio Amateurs all over the world, and its Amateur product line has since become accepted as the standard by which all others are judged.

1946 Kasuga Musen Denki Shokai Ltd., the forerunner of KENWOOD, is founded in Nagano Prefecture. Its trademark is "TRIO".

1949 The new company's high frequency transformers meet the strict standards of NHK, the Japanese national broadcasting corporation—the first of their kind.

1952 Development of the 6R-4 6-tube communications grade receiver. Its manufacture started at the Tokyo Research Laboratory.

1955 Construction of the Tokyo plant. Full-scale volume production of audio and amateur radio communications equipment and testing instruments.

1957 Completion of the world's first commercially viable FM receiver. Exported to the Radio Shack Corporation of America.

1960 Company name is changed, "TRIO Co, Ltd." becoming a public stock company.

1963 Oversea's brand is "KENWOOD" Establishment of KENWOOD CORPORATION, a sales company of Hi-Fi products, in Los Angeles, California.

1968 TRIO-KENWOOD ELECTRONICS CO. is established in Brussels, Belgium, as a sales company for Europe.

1969 Stock listing in the 1st section of the Tokyo Stock Exchange.

1970 EDRs (European Depositary Receipts) are issued in Europe.

1975 TRIO-KENWOOD COMMUNICATIONS INC. is established in Gardena, California, to market amateur radio communications equipment in the United States.

1977 TRIO-KENWOOD COMMUNICATIONS GmbH. is set up in West Germany, for Europe.

1980 Introduced very high quality Hi-Fi car stereo components into U.S.A. and Japan.

1981 Introduced video cassette recorder (VHS) in U.S.A.

1983 Entered land mobile radio market in U.S.A.

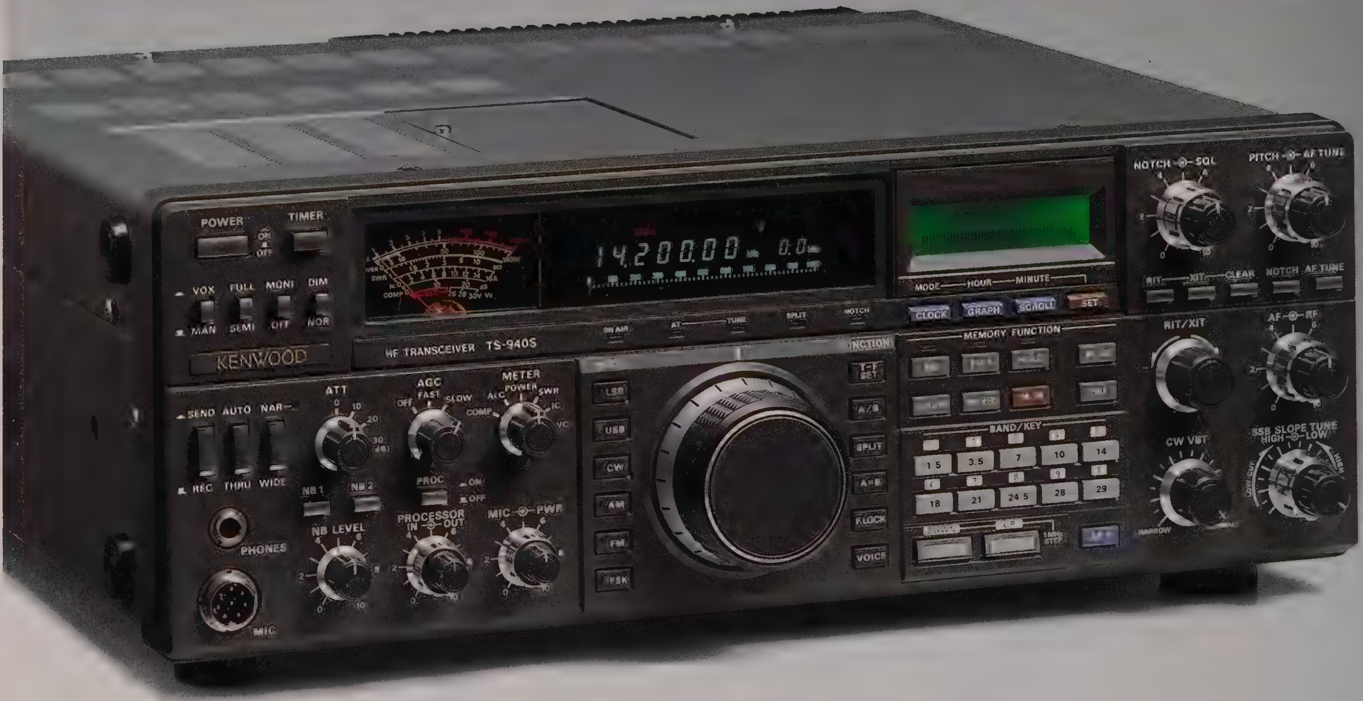
1985 Introduced revolutionary TS-940S to hams world-wide.

1986 Introduced the TS-440S compact HF transceiver with built-in antenna tuner and first high power 2-m transceiver TM-2570A.

1987 KENWOOD sales and afterservice network for Amateur radio equipment extends all over the world with the highest reputation.

TS-940S

HF TRANSCEIVER


POWER
TIMER
KENWOOD
HF TRANSCEIVER TS-940S
14.200.00
CLOCK
GRAPH
SCROLL
SET
MEMORY FUNCTION
BAND/KEY
NOTCH — SQL
PITCH — AF TUNE
RIT/XIT
AF — RF
CW VBT
SSB SLOPE TUNE
ATT
AGC
METER
NB LEVEL
PROCESSOR
MIC — PWR
PHONES
MIC
LSB
USB
CW
AM
FM
FSK
VOICE

The TS-940S is a serious radio for the serious operator. Superb interference reduction circuits and high dynamic range receiver combine with superior transmitter design to give you no-nonsense, no-compromise performance that gets your signals through! The exclusive multi-function LCD sub-display graphically illustrates VBT, SSB slope, and other features.

OUTSTANDING RECEIVER PERFORMANCE AND SENSITIVITY SPECIFICATIONS

- **Superior dynamic range receiver front end**

The IM (intermodulation) dynamic range characteristic for the receiver section is typically 102dB (20m, 50kHz spacing, 500Hz CW bandwidth), with an overall intercept point of +14dBm, noise floor level of – 138dBm.

- **160-10 meters operation, with general coverage receiver**

Covers all Amateur bands from 160 to 10 meters, including WARC bands, it also features a 150kHz—30MHz general coverage receiver. KENWOOD digital engineering ensures superior frequency accuracy and stability.
Band access keys for Amateur bands or UP/DOWN 1MHz step band switches across entire 150kHz—30MHz range.

- **All-mode operation**

Operates 250W PEP input on USB, LSB, CW, FM and FSK, and 140W DC input on AM mode.

- **Superb Interference Reduction**

a) SSB IF slope tuning
Independent HIGH CUT and LOW CUT controls permit the operator to easily and quickly define the most ideal IF passband width consistent with readability and interference rejection.

b) CW VBT (Variable Bandwidth Tuning)
The VBT control allows the passband width to be continuously varied within the range of the control without affecting the center frequency.

c) IF NOTCH filter
Only the interfering signal is reduced while the desired signal remains unaffected.

d) Audio filter built-in
Reduces interfering signals and white noise, providing a peak tuning characteristic for the AF frequency response.

e) Narrow/Wide various IF filters

MC-60A
SP-940
TS-940S
KENWOOD
14.200.00

- **CW variable pitch circuit**
For changing the pitch tone to a frequency that is easier to copy.

- **Dual-mode noise blanker**
Most effective in suppressing pulse (ignition) noise or "woodpecker" noise.

- **Built-in RIT/XIT**
Shifts the receive or transmit frequency in 10Hz steps across a range of ±9.99kHz, using an optical encoder.

- **All-mode squelch circuit**
Effective in suppressing background noise in all operating modes.

- **RF attenuator**
Includes a 4-step, (0, 10, 20, or 30dB) RF attenuator for optimum rejection of intermodulation distortion.

- **Switchable AGC circuit (OFF/FAST/SLOW)**
Provides optimum receiver operation in SSB/CW modes, and under all signal strength conditions.

KH6WZ
WD6DJY
WD6DJY
WD6DJY
WA4T/C6A
SPACE SHUTTLE

AUTOMATIC ANTENNA TUNER PLUS LOW DISTORTION, HIGH RELIABILITY TRANSMITTER

- **Automatic antenna tuner (160—10 meters) built-in**
Covers all Amateur bands or may be ordered without the tuner installed.

- **Low distortion transmitter**
KENWOOD's unique transmitter design delivers top "quality KENWOOD" sound.

- **Full break-in CW (QSK operation)**
Capability allows the DX, contest or traffic operator to respond more quickly to the calling station.

- **Built-in speech processor**
A higher average "talkpower" plus improved intelligibility makes for outstanding DX performance.

- **RF output power control**
Continuously variable from 10 watts to maximum power, in any mode of operation.

OPERATING FREQUENCY CONTROL USING NEW MICROPROCESSOR PLUS DIGITAL TECHNOLOGY

- **High stability, 10Hz step dual digital VFOs**
An engineered special optical encoder and the flywheel VFO knob give the TS-940S a positive tuning "feel".

- **40 memory channels**
Mode and frequency may be stored in 4 groups of 10 channels each.

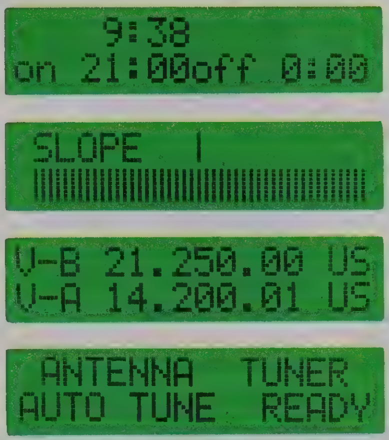
- **Scan functions**
•Memory scan: Memories without data stored are automatically skipped.
•Programmable band scan: Scans in 10Hz steps between memory channels "9" and "0". (100Hz in AM, FM modes)

- **Keyboard frequency selection**
Operating frequencies may be directly entered into the TS-940S without using the VFO knob.

MULTI-FUNCTION MAIN DISPLAY AND SUB-DISPLAY

- **Large fluorescent tube digital main display with analog-type sub-scale**
Provides improved readability and allows increased operating speed.

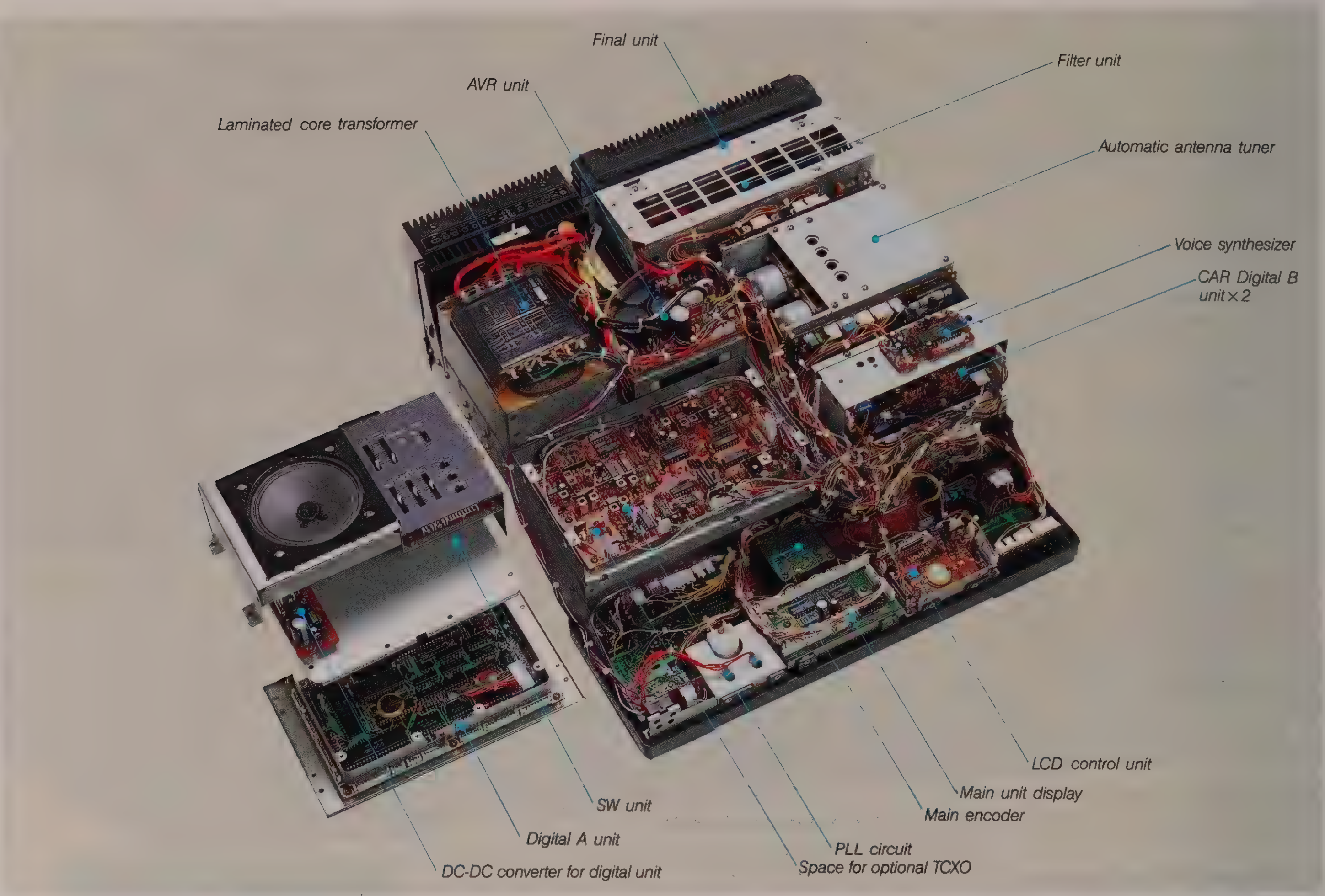
- **Exclusive multi-function LCD sub-display**
Shows SSB slope tuning, CW VBT, as well as frequency, time, and the AT-940 antenna tuner status.


9:38
on 21:00off 0:00
SLOPE |
V-B 21.250.00 US
V-A 14.200.01 US
ANTENNA TUNER
AUTO TUNE READY

SW-2000

SM-220

TL-922A
KENWOOD SWR & POWER METER SW-2000
KENWOOD STATION MONITOR SM-220
KENWOOD TL-922A LINEAR AMPLIFIER
PLATE
LOAD
BAND
POWER
MODE
METER
LINEAR


Final unit
Filter unit
AVR unit
Automatic antenna tuner
Laminated core transformer
Voice synthesizer
CAR Digital B unit×2
LCD control unit
Main unit display
Main encoder
SW unit
Digital A unit
PLL circuit
Space for optional TCXO
DC-DC converter for digital unit

MECHANICAL DESIGN AND CONSTRUCTION

- **100% duty cycle transmitter**

Super efficient cooling system using special air ducting works with the internal heavy-duty power supply to allow continous transmission at full power output for periods exceeding one hour.

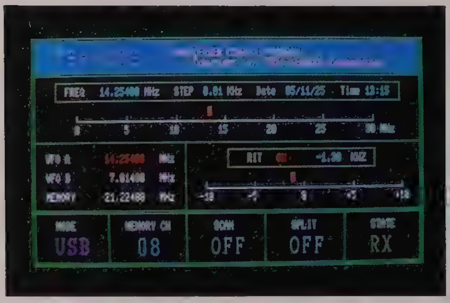
- **Rugged Zinc die-cast front panel**

Assures maximum mechanical stability under even the most severe operating conditions.

A VARIETY OF EXTRA, EASY-TO-OPERATE FUNCTIONS

- **Optional personal computer control (IF-232C/IC-10B)**

The interface unit is compatible with computers with an accessible RS-232C port. Software is not available from KENWOOD.


FREQ 14.25400 MHz STEP 0.01 KHz Date 05/11/25 Time 13:15

VFO A 14.25400 MHz
VFO B 7.01400 MHz
MEMORY 21.22400 MHz

RIT ON -1.30 KHZ

MODE USB
MEMORY CH 08
SCAN OFF
SPLIT OFF
STATE RX
0
5
10
15
20
25
30 MHz
-10
-5
0
+5
+10

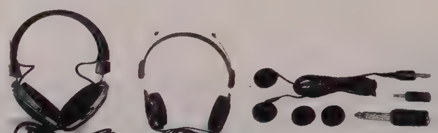
Optional Accessores

AT-940: *Automatic Antenna Tuner*
Full coverage of (TS-940S only)
160—10 meters, including WARC bands.

SP-940: *External Speaker*

SM-220: *Station Monitor*
BS-8 Pan Display Unit

TL-922A: *HF Linear Amplifier*
PC-1A: *Phone Patch Controller*
(FCC part 68 registered)
IF-232C/IC-10B: *Interface Unit*
HS-5/6/7: *Headphones*



MC-43S: *UP/DOWN Hand Microphone*

MC-60A: *Deluxe Desk-Top Microphone with built-in Pre-amplifier.*

MC-80: *Desk-Top Microphone with built-in Pre-amplifier.*

MC-85: *Multi-function Desk-Top Microphone with built-in Audio Level Compensation*

LF-30A: *Low-Pass Filter*

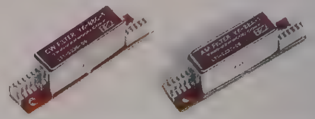
SW-200A, 2000: *SWR/POWER Meter*

SO-1: *Superior Stability TCXO*
(Temperature compensated crystal oscillator)

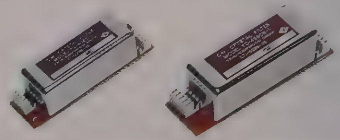
KENWOOD
SO-1

VS-1: *Voice Synthesizer Unit*

YK-88C-1: *500Hz CW Filter for 8.83MHz IF*
YK-88A-1: *6kHz AM Filter for 8.83MHz IF*



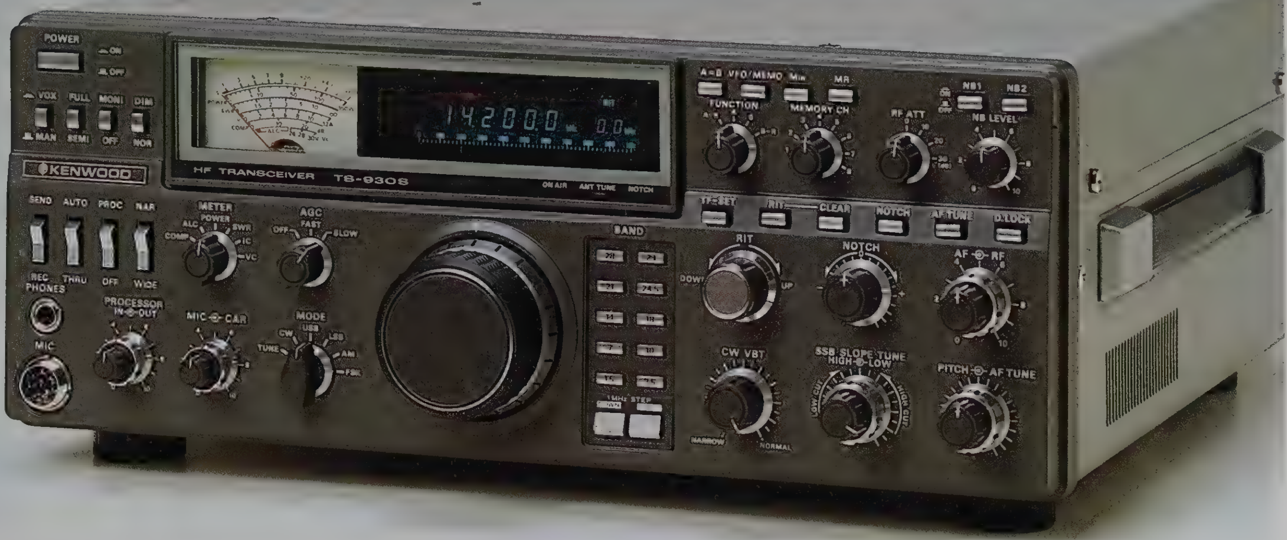
YG-455C-1: *500Hz CW Filter for 455kHz IF*
YG-455CN-1: *250Hz CW Narrow Filter for 455kHz IF*



- **Built-in AC power supply and high quality 4 inch (10 cm) speaker**
- **Clock/Timer function**
- **Transmission monitor circuit**
- **High stability RTTY transmit circuit**
- **Optional TCXO and voice synthesizer**
- **Dimmer switch**
- **100kHz marker**
- **Vox circuit**

TS-930S

HF TRANSCEIVER



The TS-930S is a superlative, high performance, all solid-state, HF transceiver capable of operation in the SSB, CW, FSK, and AM modes on all Amateur bands.

- **160—10 meter Amateur bands, plus 150kHz—30MHz general coverage receiver**
  Covers all Amateur frequencies, including the new WARC bands. Modes of operation include SSB, CW, FSK, and AM.

- **Wide receiver dynamic range**
  Dynamic range performance for receiver section is 100dB, with an overall intercept point of +12dBm, noise floor level of 138dBm, and a blocking dynamic range of 139dB (20m, 50kHz spacing, 500Hz CW bandwidth).

- **All solid-state, 28 volt operated final amplifier**
  The quality of transmitted signal is measurably improved over contemporary designs through the use of a 28 volt power source.

- **RF power input**
  The TS-930S runs 250W PEP input on USB, LSB, CW and FSK, and 80W DC input on AM mode.

- **Automatic antenna tuner built-in**
  Available with the AT-930 antenna tuner built-in, or as an option to be added later.

- **CW full break-in**
  Capability allows the DX, traffic or contest operator to respond more quickly to the calling station.

- **Dual digital VFOs**
  Built-in 10Hz step dual digital VFOs operate independently of each other, and include band information, allowing for ease of split frequency or cross-band operation without the need for a separate VFO.

- **Built-in RIT**
  Shifts the receive frequency in 10Hz steps across a range of ±9.99kHz, using an optical encoder.

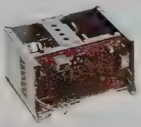
- **Eight memory channels**
  Store frequency and band information, making operation simple and convenient.

- **SSB IF slope tuning**
- **CW VBT (Variable Bandwidth Tuning)**
- **CW pitch control**
- **Narrow/Wide filter selection**
- **IF notch filter**
- **Dual mode noise blanker (“pulse” or “woodpecker”)**
- **Audio filter built-in**
- **Fluorescent tube digital display**
- **RF speech processor**
- **AC power supply built-in**

- **Other circuits**
  SSB monitor/RF attenuator (10, 20 or 30dB)/VOX/100kHz marker

Optional Accessories

AT-930: *Automatic Antenna Tuner (80m ~ 10m)*



SP-930: *External Speaker*

SM-220: *Station monitor*

TL-922A: *HF Linear Amplifier*

PC-1A: *Phone Patch (FCC part 68 registered)*

HS-5/6/7: *Headphones*

MC-43S: *UP/DOWN Microphone*

MC-60A/80/85: *Deluxe Desk-top Microphones*

LF-30A: *Low-Pass Filter*

SW-200A/2000: *SWR/Power Meters*

SO-1: *TCXO (Temperature Compensated Crystal Oscillator)*

YK-88A-1: *6kHz AM Filter for 8.83MHz IF*

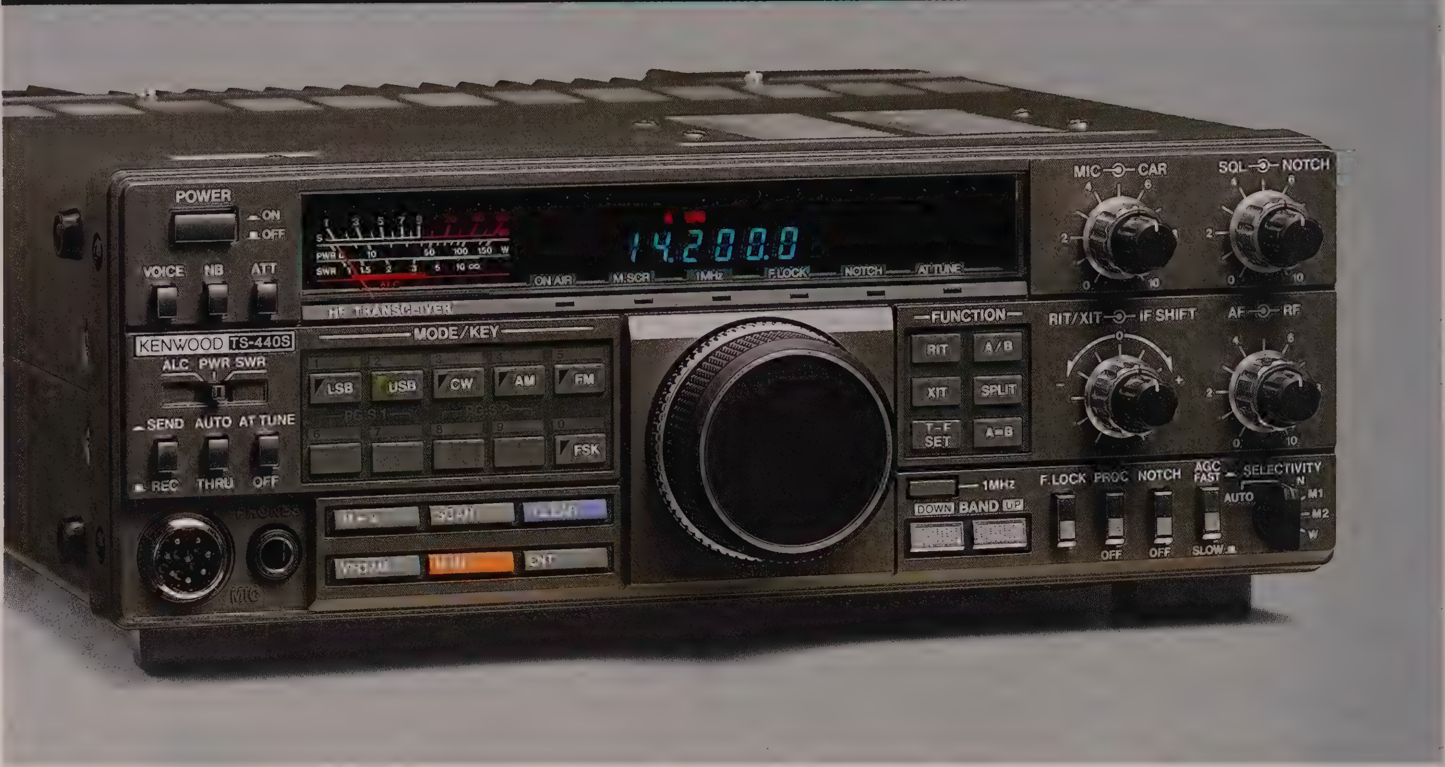
YK-88C-1: *500Hz CW Filter for 8.83MHz IF*

YG-455C-1: *500Hz CW Filter for 455kHz IF*

YG-455C-1: *250Hz CW Narrow Filter for 455kHz IF*

TS-440S

HF TRANSCEIVER



The TS-440S is an HF transceiver designed to condense every conceivable feature for SSB, CW, AM, FM and AFSK mode of operation on all Amateur bands in one compact package. It is the ultimate compact size with the automatic antenna tuner built-in and featuring a highly efficient final amplifier cooling system. It incorporates a 100kHz to 30MHz general coverage receiver having superior dynamic range.

- **160—10 meters Amateur band operation with 100kHz to 30MHz general coverage receiver**

The TS-440S covers all Amateur bands from 160 to 10 meters, including the new WARC bands. Its superior dynamic range general coverage receiver provides reception on any frequency from 100kHz to 30MHz.

- **All-mode operation**

Mode selection USB, LSB, CW, AM, FM or AFSK is quickly accomplished through use of the front panel mode keys. International Morse Code confirms the selected mode.

- **Automatic antenna tuner (80—10 meters) built-in**

The TS-440S is available with an automatic antenna tuner covering all Amateur bands from 80 through 10 meters built-in, or may be ordered without the tuner installed.

- **100% duty cycle transmitter**

The 100W final amplifier stage is mounted directly on its die-cast aluminum heat sink. The high efficiency of the cooling system allows continuous transmission (Key Down) at full power output for periods exceeding one hour. (The PS-50 Heavy Duty Power Supply is required for full power key down transmission such as RTTY, SSTV or FM).

- **Compact and lightweight**

Designed with every conceivable feature plus an automatic antenna tuner built-in. Measures only 270(10.6)W × 96(3.8)H × 313(12.3)Dmm (inch) and weighs 7.3kg (16.1 lbs.)

- **CW full break-in, semi break-in, and VOX circuit**

The full break-in capability allows the DX or contest operator to respond more quickly to the calling station. To the "ragchewer", it means a more natural conversation.

- **Super receiver dynamic range**

The receiver front end has been specifically designed to provide superior dynamic range. The IM dynamic range is 102dB, with an overall intercept point of +15dBm, noise floor level of −138dBm. (with the optional 500Hz CW filter YK-88C installed).

SP-430

Superb interference reduction

The TS-440S incorporates a number of special interference.

- Dual IF crystal filter improves SSB operation.
- IF shift circuit
- Tunable NOTCH filter

Selectable IF filters

Offers a fully flexible system of IF filter selection when optional filters are installed. The 5-position selectivity switch (AUTO, N, M₁, M₂ and W) may be set to "AUTO", in which case the optimum filter bandwidth is automatically chosen for the mode selected. Manual selection is also possible, allowing the operator to choose alternative bandwidths depending on QRM conditions for optimum reception.

MODE / POSITION	SSB	CW	AM	FSK	FM
AUTO	*[1]2.1/ *[2]1.8 kHz	*[3]500/ *[4]270 Hz	6 kHz	*[3]500/ *[4]270 Hz	12 kHz
N	*[3]500/*[4]270 Hz				
M₁	*[1]2.1/*[2]1.8 kHz				
M₂	2.2 kHz				
W	6 kHz				

*[1] option YK-88S installed

*[2] option YK-88SN installed

*[3] option YK-88C installed

*[4] option YK-88CN installed

Frequency control function, using digital VFOs

- **10Hz step dual digital VFOs**
  Built-in 10Hz (100Hz in AM, FM mode) step dual digital VFOs operate independently of each other, allowing ease of split frequency or cross-band operation in different modes without the need for a separate VFO.
- **UP/DOWN switches (1MHz step)**
  Allow easy selection of the desired band.
- **100 memories store frequency, band and mode**
  100 memory channels allow storage of frequency, band, and mode information, providing increased convenience with simplicity of operation.
- **Keyboard frequency selection**
  The VFO frequency may be directly entered using the front panel number keys.
- **Memory scroll**
  A convenient function "memory scroll" may be used to check memory channel data or to find a vacant channel on the display without changing operating frequency or mode.
- **Memory scan**
  Any or all 100 memory channels may be scanned.
- **Dual programmable band scan**
  Allow selection of desired frequency groups to be scanned. Both groups may also be scanned, one after the other.
- **Built-in RIT/XIT**
  The RIT/XIT shifts the receiver/transmitter frequency, to tune in stations slightly off frequency, or when a DX station may be listening "off frequency".
- **Optional TU-8 CTCSS encoder**
  Channels 90 through 99 are used for split frequency memory. Useful for 10 meter FM repeater operation.

All-mode squelch circuit

Effective in suppressing background noise in all operating modes.

RF attenuator

A 20dB attenuator provides optimum rejection of intermodulation distortion from extremely strong signals.

Switchable AGC circuit (FAST/SLOW)

The automatic gain control is activated by a two-position FAST/SLOW switch, to provide optimum receiver operation.

Adjustable VFO tuning torque

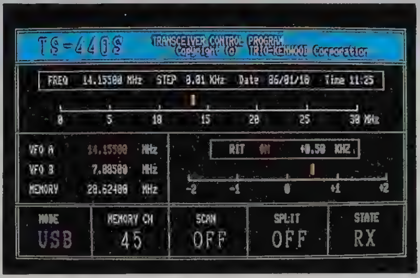
The tuning control torque is adjustable using the outer ring of the main knob.

Non-volatile operating system with lithium battery memory back-up

All KENWOOD transceivers retain microcoded operating functions even when the lithium memory cells fail. No factory re-programming is necessary! Estimated five-year life of memory backup.

Optional personal computer control (IF-232C/IC-10)

The interface unit is compatible with computers with an accessible RS-232C port. Software is not available from KENWOOD.

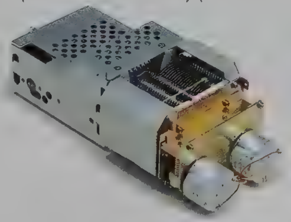


```
TS-440S   TRANSCEIVER CONTROL PROGRAM
          Copyright (c)  TRIO-KENWOOD Corporation
FREQ  14.15500 MHz  STEP  0.01 KHz  Date  86/01/10  Time 11:25
0      5      10      15      20      25      30 MHz
VFO A    14.15500  MHz        RIT  ON       +0.50  KHZ
VFO B     7.08500  MHz
MEMORY   28.62400  MHz     -2    -1    0    +1    +2
MODE   MEMORY CH   SCAN   SPLIT   STATE
USB       45       OFF    OFF     RX
```

Multi-function meter, with SWR circuit
Fluorescent tube digital display
LED indicators for miscellaneous functions
Optional "Voice Synthesizer Unit (VS-1)"
Built-in noise blanker
Built-in speech processor circuit
"F. LOCK" switch
UP/DOWN microphone included

Optional Accessories

AT-440: *Internal Automatic Antenna Tuner (80-m—10-m bands) (Built-In or Option)*



AT-250: *Automatic Antenna Tuner (160-m—10-m bands)*

AT-130: *Compact Antenna Tuner (80-m—10-m bands)*

PS-50: *Heavy Duty Power Supply Designed to match the TS-440S in size, color and appearance. Supplies regulated 13,8V DC at 20A with built-in cooling fan and protection circuits for maximum reliability*

PS-430: *DC Power Supply*

SP-430: *External Speaker*

SP-40: *Compact Mobile Speaker (4Ω)*

SP-50B: *Mobile Speaker (8Ω)*

PG-2S: *DC Cable*

MB-430: *Mobile Mount*

MC-60A/80/85: *Deluxe Desk-Top Microphones*

MC-55: *Mobile Microphone with Time-Out-Timer*

MC-43S: *UP/DOWN Microphone*

YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

YK-88S: *2.4kHz SSB Filter*

YK-88SN: *1.8kHz SSB Filter*

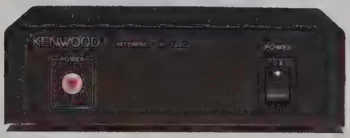
HS-5/6/7: *Headphones*

PC-1A: *Phone Patch (Available only where phone patch operation is legal)*

SW-100A/200A/2000: *SWR/POWER Meter*

MA-5: *Mobile Antenna (VP-1: Bumper Mount for MA-5)*

IF-232C/IC-10: *Interface Unit*



VS-1: *Voice Synthesizer Unit*

TU-8: *CTCSS Tone Unit*

SW-2000

TS-711A

TS-811A

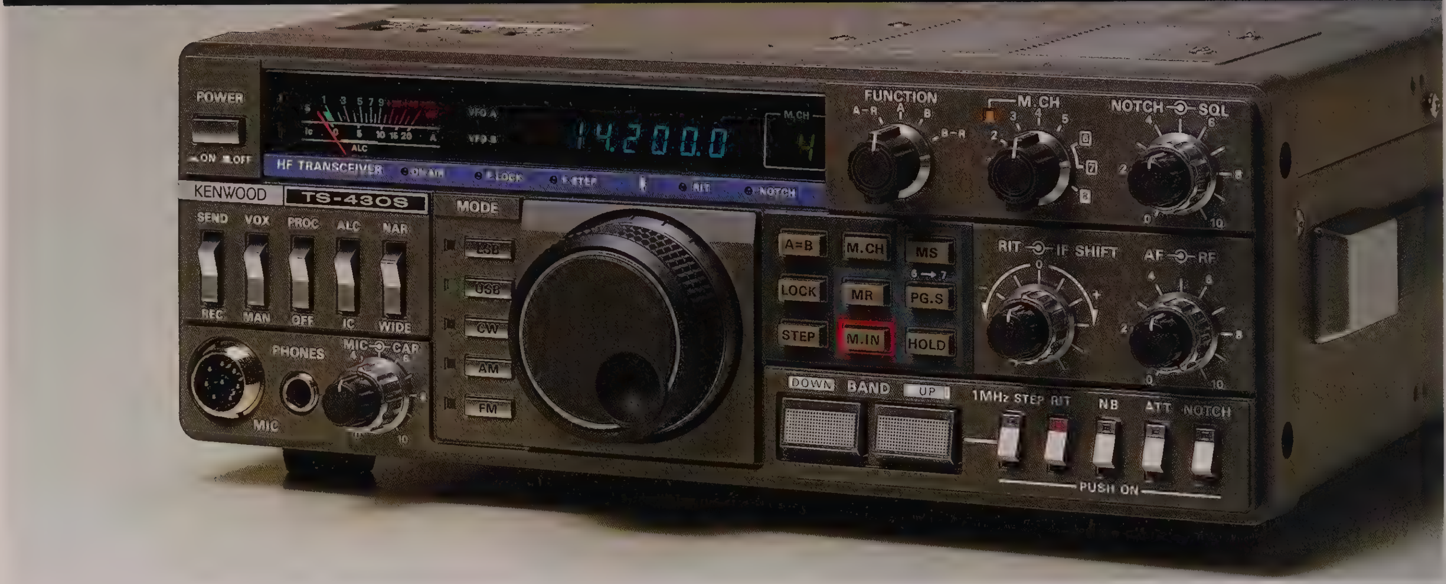
PS-50

TS-440S

MC-85

TS-430S

HF TRANSCEIVER



The TS-430S combines the ultimate in compact styling with advanced circuit design and performance. An all solidstate SSB, CW, and AM transceiver, with FM optional, covering the 160—10 meter Amateur bands, it also incorporates a 150kHz—30MHz general coverage receiver having a superior dynamic range.

- **160—10 meters operation, with general coverage receiver**
With 160—10 meter Amateur band coverage, including WARC bands, it also features a 150kHz—30MHz general coverage receiver.

- **USB, LSB, CW, AM, with optional FM**
Operates on USB, LSB, CW, and AM, with optional FM, internally installed. Mode selection is quickly accomplished through the use of front panel mode keys with adjacent LED' indicator.

- **All solid-state technology**
Input rated 250W PEP on SSB, 200W DC on CW, 120W on FM (optional), 60W on AM. built-in cooling fan, multi-circuit final protection.

- **Compact, lightweight design**

- **Superior receiver dynamic range**
Use of 2SK 125 junction-type FETs in the Dyna-Mix high sensitivity, balanced, direct mixer circuit provides superior dynamic range.

- **10Hz step dual digital VFOs**
10Hz step dual digital VFOs operate independently, and include band and mode information. Different band and mode cross operation possible. Dial torque adjustable. STEP switch for tuning in 10Hz or 100Hz steps.

- **Eight memory capability for storing frequency, mode, and band data**
Memories store frequency, mode, and band data. Eight memory stores, receives, and transmits frequencies independently. M.CH switch for operation of memory as independent VFO or for fixed frequency.

- **Memory scan**
Scans memories in which data is stored.

- **Programmable automatic band scan**
Scans programmed band width with adjustable scan speed.

- **IF shift circuit for minimum QRM**
IF passband may be moved to place interfering signals outside the passband, for best interference rejection.

- **Tunable notch filter built-in**
Deep, sharp, tunable, audio notch filter.

- **Narrow-wide filter selection**
NAR-WIDE switch for IF filter selection on SSB and CW when optional filters are installed. (2.4kHz IF filter built-in).

- **Speech processor built-in**
Improves intelligibility, increases average "talk-power"

- **All-mode squelch circuit built-in**
Effective in suppressing background noise in all operating modes during key-up intervals.

- **Noise blanker built-in**
Eliminates pulse-type interference such as ignition noise.

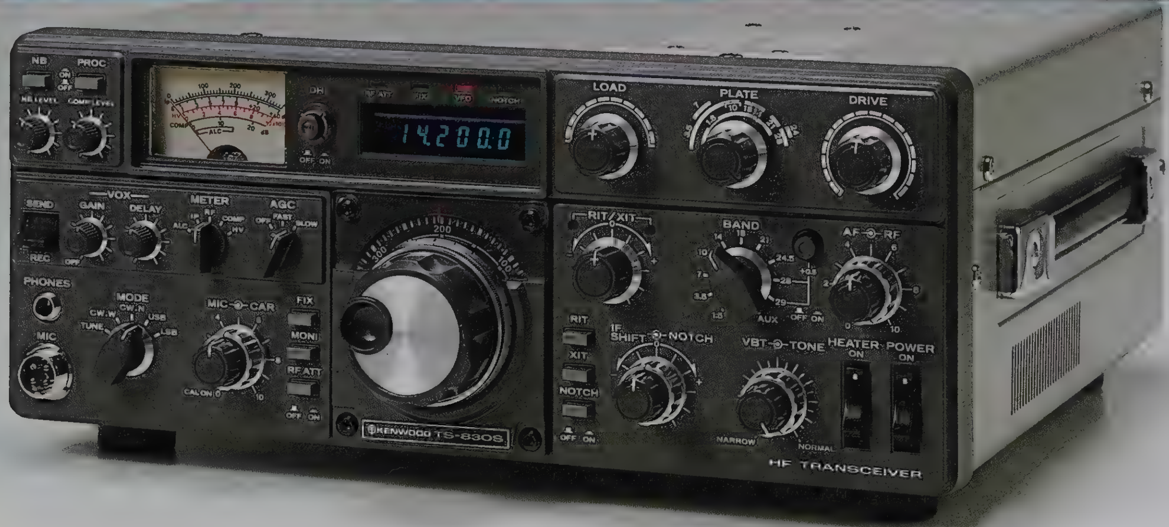
Optional Accessories

AT-250: *Automatic Antenna Tuner (160—10-m)*
AT-130: *Compact Antenna Tuner (80—10-m)*
PS-430: *Compact AC Power Supply*
SP-430: *External Speaker*
PG-2S: *Extra DC Cable*
MB-430: *Mobile Mounting Bracket*
VP-1: *Mobile Mount for MA-5*
FM-430: *FM Unit*
TL-922A: *HF Linear Amplifier*
PC-1A: *Phone Patch*
HS-5/6/7: *Headphones*
MC-43S: *UP/DOWN Hand Microphone*
MC-55 (8-pin): *Mobile Microphone*
MC-60A/80/85: *Deluxe Desk-Top Microphone*
LF-30A: *Low-Pass Filter*
MA-5: *HF Mobile Antenna*
SW-200A, 2000: *SWR/Power Meter*
YK-88A: *6kHz AM Filter*
YK-88C: *500Hz CW Filter*
YK-88CN: *270Hz CW Filter*
YK-88SN: *1.8kHz SSB Narrow Filter*

- **Fluorescent tube digital display**
- **RF attenuator (20dB)**
- **Vox circuit, plus semi-break-in with side-tone.**
- **Lithium battery memory back-up**

TS-830S

HF TRANSCEIVER



The TS-830S is a high-performance, very affordable, HF SSB/CW transceiver with every conceivable operating feature built-in for 160 through 10 meters (including the three new bands).

- **160-10 meters including three new bands**
  Covers all Amateur frequencies between 1.8 and 29.7MHz, including the new bands.
- **Wide receiver dynamic range**
  Receiver section has a very wide dynamic range with impressive IMD rejection characteristics, resulting in increased immunity to strong, local signals.
- **VBT (Variable Bandwidth Tuning)**
  The inclusion of the VBT circuit is capable of varying continuously the IF filter passband width. Optimum IF bandwidth may be established relative to varying conditions of interference.
- **IF notch filter**
  Sharp, deep notch characteristics will eliminate a strong interfering carrier within the passband of the receiver section.
- **IF shift**
  The VBT and notch circuits, when combined with the IF shift, provide higher adjacent channel selectivity, very useful under crowded conditions.
- **Built-in digital display**
  A large, six-digit, fluorescent tube display is built into the TS-830S, backed up by an analog sub-dial.
- **Various IF filter options**
- **6164B final with RF NFB**
  RF negative feedback, using two 6164Bs in the final amplifier, provides optimum IMD characteristics for high quality transmission.
- **Innovative PLL system**
- **More flexibility with optional external digital VFO (VFO-230)**
- **RF speech processor**
  Provides added audio punch and increases average SSB output power, while suppressing sideband splatter.
- **Adjustable noise-blanker level**
  Eliminates pulse-type (such as ignition) noise, adjusts the threshold level of the noise amplifier.
- **Adjustable audio tone**
  Adjusts receiver audio frequency response for best readability under various conditions.
- **RF attenuator (20dB)**
- **RIT/XIT**
- **SSB monitor circuit**
- **Expanded frequency coverage**
- **Built-in AC power supply**
- **Other versatile provisions**
  Built-in 25kHz marker/VOX circuit for SSB operation and CW semi-break-in operation with sidetone/Switchable AGC circuit (SLOW/FAST/OFF)/CW audio tone circuit/CW zero-beat function

Optional Accessories

AT-230: *Antenna Tuner*

SP-230: *External Speaker*

VFO-230: *Digital Remote VFO*

VFO-240: *Remote VFO*

SM-220: *Station Monitor*

TL-922A: *HF Linear Amplifier*

PC-1A: *Phone Patch*

HS-5/6/7: *Headphones*

MC-30S (500Ω)/**MC-35S** (50kΩ): *Noise-Cancelling Hand Microphone*

MC-50 (50kΩ/500Ω): *Desk-top Microphone*

SW-200A(200W)/2000(2kW): *SWR/Power Meter*

LF-30A: *Low-Pass Filter*

YG-455C: *500Hz CW Filter*

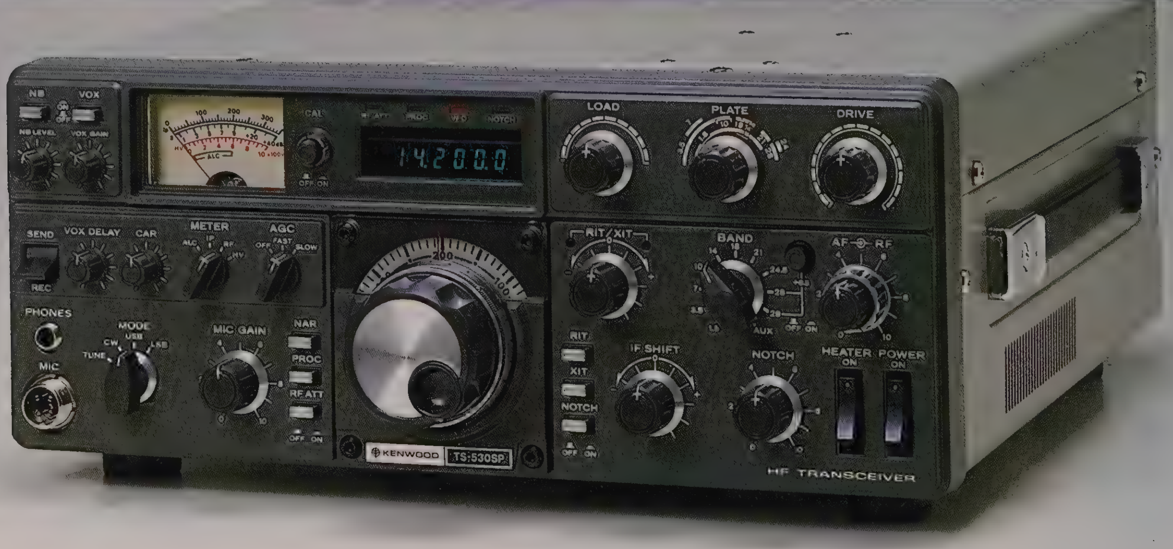
YG-455CN: *250Hz CW Filter*

YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

TS-530SP

HF TRANSCEIVER



The TS-530SP HF transceiver is designed in accordance with KENWOOD's latest, most advanced circuit technology, providing wide dynamic range, high sensitivity and very sharp selectivity.

- **160—10 meter coverage including three new bands**

Covers all Amateur bands from 160 to 10 meters, including the new bands.
Operating modes include LSB, USB, and CW.

- **Built-in digital display**

Frequencies are easy to read on the large, built-in, six-digit, fluorescent-tube display, backed up by an analog sub-dial.

- **Narrow/Wide filter combinations**

The various filter bandwidth mode combinations are shown in the chart. (receiving only):

TS 530SP OPTIONAL FILTER COMBINATIONS

MODE	SSB		CW	
	WIDE	NARROW	WIDE	NARROW
YK-88SN	2.4kHz	1.8kHz	2.4kHz	1.8kHz
YK-88C	2.4kHz	—	2.4kHz	500Hz
YK-88CN	2.4kHz	—	2.4kHz	270Hz
YK-88SN + YK-88C	2.4kHz	1.8kHz	*2.4kHz or 1.8kHz	500Hz
YK-88SN + YK-88CN	2.4kHz	1.8kHz	*2.4kHz or 1.8kHz	270Hz
YK-88C + YK-88CN	2.4kHz	500Hz	500Hz	270Hz

*2.4kHz or 1.8kHz selected by inside jumper.

- **Built-in tunable notch filter**

A sharp notch filter is built into the audio circuit, it is tunable to permit adjustment of the system for best interference rejection.

- **Wide receiver dynamic range**

The receiver section exhibits a very wide dynamic range with especially good IMD rejection characteristics, resulting in greater immunity to strong, local signals.

- **Built-in speech processor**

Combines an audio compression amplifier with change of ALC time constant for extra audio punch and increased average SSB output power, and supresses sideband splatter.

- **Advanced single-conversion PLL system**

Eliminates the requirement for a crystal element for each band.

- **Adjustable noise-blanker level**

Pulse-type noise (such as ignition) is eliminated by the built-in noise-blanker.

- **RF attenuator (20dB) for IMD rejection**

Provides optimum rejection of intermodulation distortion from extremely strong signals.

- **More flexibility with optional VFO**
- **Expanded frequency coverage**
- **Built-in VOX semi-break-in**
- **Built-in 25kHz marker**
- **RIT/XIT**
- **Attractive appearance with rugged construction**

Designed to enhance the appearance of any ham shack, while providing ease of operation with a functional layout of controls.

- **Amplified type AGC (Automatic Gain Control) circuit**

Activated by a three-position (OFF/FAST/SLOW)

- **Built-in AC power supply**
- **Amplified type ALC circuit**
- **Final cooling fan**

Optional Accessories

AT-230: *Antenna Tuner*

SP-230: *External Speaker*

VFO-230: *Digital Remote VFO*

VFO-240: *Remote VFO*

SM-220: *Station Monitor*

TL-922A: *HF Linear Amplifier*

PC-1A: *Phone Patch*

HS-5/6/7: *Headphones*

MC-30S(500Ω)/35S(50kΩ): *Noise Cancelling Hand Microphone*

MC-50: *Desk-top Microphone*

SW-200A(200W)/SW-2000(2kW): *SWR/Power Meter*

LF-30A: *Low-Pass Filter*

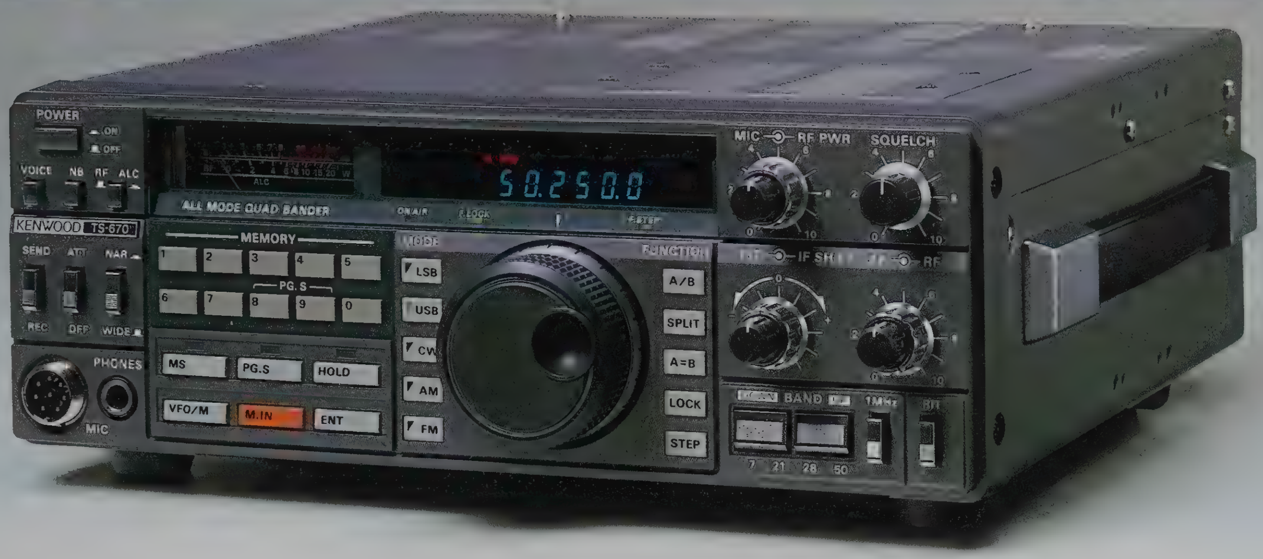
YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

YK-88SN: *1.8kHz SSB Narrow Filter*

TS-670

ALL-MODE "QUAD-BANDER" TRANSCEIVER



The TS-670 "Quad-Bander" is a unique all-mode transceiver that covers the 6 meter VHF band, and the 10, 15, and 40 meter HF bands, combining the ultimate in compact size with advanced circuit design and performance.

- **6-m VHF, plus 10, 15, and 40-m HF**

Provides coverage of the 6-m VHF band, as well as the 10, 15, and 40-m HF bands.

- **Optional GC-10 general coverage receiver unit**

Features a superior dynamic range, and may be easily installed within the TS-670 cabinet.

- **LSB, USB, CW, AM, all-mode, with FM optional (FM-430)**

Modes of operation include LSB, USB, CW, and AM, in transmit or receive.

- **Built-in 10Hz dual digital VFOs**

Operate independently of each other, allowing for ease of split frequency or cross-band operation, in different modes, without the need for a separate VFO.

- **80 memory capability for storing frequency, band, and mode.**

The 80 memory channels allow storage of frequency, band, and mode data, providing increased convenience with simplicity of operation. Memory information is backed-up by an internal lithium battery (est. 5 year life). Memories are divided into 8 groups of 10 channels each, for scanning purposes. The operator may select any 2 groups for scanning, but if no selection is made, group "0" will be automatically selected.

- **Direct frequency key selection**

Enter a frequency directly to either VFO or to a memory channel, utilizing the 10-key pad.

- **Two-color fluorescent tube display**

Indicates frequency in 100Hz increments (10Hz modifiable), and includes LED indicators that signal the specific functions being used.

- **Voice syntheiszer unit (optional)**

An optional VS-1 Voice Synthesizer Unit is available, which announces the frequency when the VOICE switch depressed.

- **IF shift circuit**
- **All-mode squelch circuit**
- **CW semi break-in circuit, with side tone**
- **Narrow-wide filter selection**
- **Separate antenna connector for 6-m and HF**
- **Frequency lock**
- **Noise blanker**
- **RF attenuator**
- **RF power control**

Optional Accessories

PS-430: *Base Station Power Supply*

KPS-7A: *DC Power Supply*

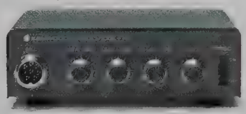
SP-430: *External Speaker*

FM-430: *FM Unit*

GC-10: *General Coverage Receiver Unit*

VS-1: *Voice Synthesizer Unit*

VOX-4: *VOX/Speech Processor*



MB-430: *Mobile Mount*

HS-5/6/7: *Headphones*

MC-43S: *UP/DOWN Hand Microphone*

MC-55 (8P): *Mobile Boom Microphone*

MC-60A: *Deluxe Desk-top Microphone*

MC-80: *Desk-top Microphone*

MC-85: *Multi-function Desk-top Microphone*

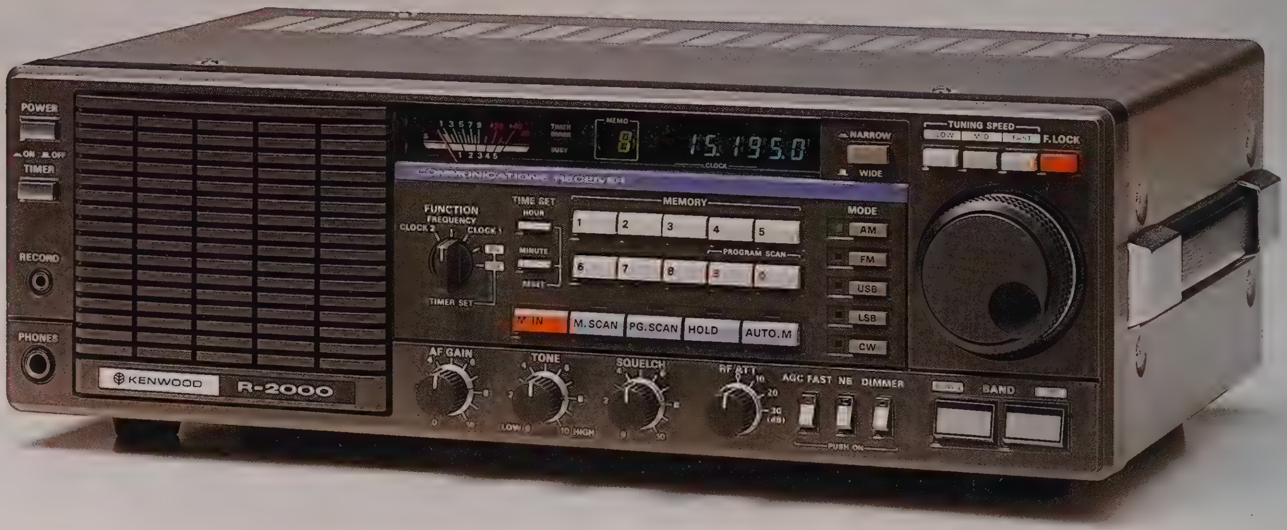
YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

YK-88A: *6kHz AM Filter*

R-2000

COMMUNICATIONS RECEIVER



The R-2000 is an innovative all-mode SSB, CW, AM, FM receiver that covers 150kHz—30MHz. With an optional VC-10 VHF converter unit, coverage of the 118—174MHz frequency range is possible.
New microprocessor controlled operating features and an up-conversion PLL circuit assure maximum flexibility and ease of operation.

- **Covers 150kHz—30MHz in 30 bands**

Use of an innovative up-conversion digitally controlled PLL circuit provides maximum ease of operation and superior performance.

- **Optional 118—174MHz coverage**

Through use of innovative microprocesor technology, frequency, band, and mode data of stations in the 118—174MHz range may be tuned, displayed, stored in memory, recalled and scanned.

- **All modes : SSB, CW, AM, and FM**

Modes of operation include SSB, CW, AM, and FM, combined with a wide frequency coverage.

- **Digital VFO's feature excellent stability**

•Use of 50Hz step digital VFO's, results in superior frequency accuracy and stability.
•Tuning speed switches allow changing the size of the tuning step for efficient operation (50Hz/500Hz/5kHz).

- **Ten memories store frequency, band, and mode data**

Each of the ten memory frequencies may be tuned by the VFO, oprating as ten built-in digital VFO s. All information on frequency, band, and mode is stored in memory assuring ease of operation.

- **Lithium battery memory back-up**

Memory and VFO information are backed-up. (estimated 5 year life).

- **Memory scan**

Scans all memory channels, or may be user programmed to scan specific memory channels.

- **Programmable band scan**

Scans automatically within the programmed bandwidth.

- **High performance receiver circuit**

Designed to exhibit communications receiver levels of performance in sensitivity, selectivity, and stability.

- **7-digit fluorescent tube digital display (100Hz resolution)**

Indicates frequency (or time), as well as selected memory channel number.

- **Dual 24-hour quartz clocks, with timer**

Ability to program two different time zones, such as local time and GMT.

- **Three built-in IF filters with narrow-wide selector switch (CW filter optional : YG-455C 500Hz narrow)**

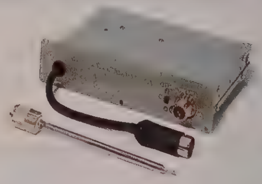
In the AM mode, 6kHz wide or 2.7kHz narrow may be selected. In the SSB mode, 2.7kHz bandwidth is automatically selected.

- **Squelch circuit, all mode, built-in**

Effective in suppressing background noise in any operating mode.

Optional Accessories

VC-10: *VHF Converter (118—174MHz) for the R-2000.*
**The VC-10 may not be available depending on the regulations of each specific country.*



DCK-1: *DC Power Cable*

HS-5/6/7: *Headphones*

YG-455C: *500Hz CW Filter*

- **Noise blanker built-in**

Effective in suppressing ignition and other pulse-type noise.

- **Large front mounted speaker**
- **Tone control**
- **RF step attenuator (0—10—20—30 dB)**
- **AGC switch**
  "S" meter with SINPO scale
- **High and low impedance antenna terminals**
- **100—240 VAC operation**
- **Optional 13.8VDC operation (using the optional DCK-1)**
- **Record output jack on front panel**
- **Remote terminal**
- **Muting terminal**

SPECIFICATIONS

	TS-940S	TS-930S	TS-440S	TS-430S	TS-830S
[GENERAL]					
Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30*, 20, 17*, 15, 12*, 10 meter Amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur band	160 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30*, 20, 17*, 15, 12*, 10 meter Amateur bands
Receiver Frequency Range	150kHz ~ 30MHz	150kHz ~ 30MHz	100kHz—30MHz	150kHz ~ 30MHz	
Mode	A3J (SSB) A1 (CW) F1 (FSK), F3 (FM), A3 (AM)	A3J (SSB), A1 (CW) F1 (FSK), A3 (AM)	A3J (J3E) (USB, LSB), A1 (A1A) (CW), F1 (F1B) (FSK), F3 (F3E) (FM), A3 (A3E) (AM).	A3J (SSB), A1 (CW), A3 (AM) F3 (FM) (optional accessory)	A3J (SSB), A1 (CW), A3 (AM)=TS-830M
Frequency Stability	$\pm 10 \times 10^{-6}$ (−10°C ~ +50°C)	—	Better than $\pm 10 \times 10^{-6}$	Better than $\pm 30 \times 10^{-6}$ (0°C ~ 50°C) Within ±200Hz from 1 to 60 minutes after turn on. Within ±30Hz any 30 minutes period thereafter.	Within 1kHz from 1 to 60 minutes after turn on. Within 100Hz any 30 minutes period thereafter.
Frequency Accuracy	$\pm 10 \times 10^{-6}$ (at normal temperature)	$\pm 10 \times 10^{-6}$ (at normal temperature)	Better than $\pm 10 \times 10^{-6}$ (−10°C ~ +50°C)	Better than $\pm 10 \times 10^{-6}$	
Antenna Impedance	50Ω (20 ~ 150Ω with AT-940 installed, transmission only)	50Ω (20 ~ 150Ω with the AT-930 installed, 80 ~ 10m Amateur bands only)	50Ω (20 ~ 150Ω with the antenna tuner nstalled, transmitter only)	50Ω	50Ω ~ 75Ω
Power Requirements	120/220/240V AC, 50/60Hz	120/220/240V AC, 50/60Hz	12.0 to 16.0 VDC (standard 13.8V)	12.0 to 16.0VDC (13.8V nominal)	120/220/240V AC, 50/60Hz
Power Consumption	Max. transmit 510W Receive (no signal) 80W	Max. transmit 510W Receive (no signal) 80W	Max. Transmit 20A, Receive (no signal) 1.9 A	Transmit 20A approx. Receive 1.2A approx.	Transmit 295W Receiver 32W (with heater off)
Dimensions mm (inch) (Projections not included)	401 (15.79) W × 141 (15.55) H × 350 (13.78) D	374 (14.7) W × 141 (15.55) H × 350 (13.78) D	270 (10.63) W × 96 (3.78) H × 313 (12.32) D	270 (10.6) W × 96 (3.8) H × 275 (10.8) D	333 (13.3) W × 133 (5.3) H × 333 (13.3) D
Weight	18.5kg (40.78 lbs.) approx. 20kg (44.09 lbs.) approx. (with AT-940)	16.8kg (37.0 lbs.) approx. 18.5kg (40.8 lbs.) approx. (with AT-930)	6.3kg (13.89lbs.) approx. 7.3kg (16.09lbs.) approx. (with AT-440)	6.5kg (14.3 lbs.)	13.3kg (29.8 lbs.)
[TRANSMITTER]					
Final Power Input	SSB/CW/FSK/FM = 250W PEP AM = 140W	SSB/CW/FSK = 250W PEP AM = 80W	SSB/CW/FM/AFSK = 200W, AM = 110W	SSB = 250W PEP, CW = 200W PEP, AM = 60W FM = 120W (10-m)	SSB = 220W PEP, CW = 180W DC AM = 80W DC (TS-830M)
Modulation	SSB = Balanced Modulation FM = Reactance Modulation AM = Low Level Modulation	SSB = Balanced Modulation AM = Low Level Modulation	SSB = Balanced Modulation FM = Reactance Modulation AM = Low Level Modulation	SSB = Balanced Modulation AM = Low Level Modulation FM = Variable Reactance Direct Shift	SSB = Balanced Modulation AM = Low Level Modulation
FM Maximum Frequency Deviation	±5kHz	—	±5kHz	±5kHz (with FM-430)	—
FSK Shift Width	170Hz	170Hz	—	—	—
Carrier Suppression	Less than −40dB	Less than −40dB	Less than −40dB (Modulation frequency: 1.5kHz)	Less than −40dB	Less than −40dB
Spurious Response	Less than −40dB (CW)	—	Less than −40dB (CW)	—	—
Unwanted Sideband Suppression	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB	Better than 60dB
Third Harmonic Intermodulation Distortion	Better than −37dB (at 14.2kHz) (based on single tone output)	−31dB	Better than −26dB	—	—
Microphone Impedance	500Ω ~ 50kΩ	500Ω or 50kΩ (connector switchable)	500Ω ~ 50kΩ	500Ω ~ 50kΩ	500Ω ~ 50kΩ
Frequency Response (SSB)	400 ~ 2600Hz (−6dB)	400 ~ 2600kHz (−6dB)	400 ~ 2600kHz (−6dB) (SSB)	400 ~ 2600Hz (−6dB)	400 ~ 2600Hz (−6dB)
Harmonic Content	—	—	—	Less than −40dB	—
[RECEIVER]					
Circuitry	SSB/CW/AM/FSK = Quadruple Conversion System FM = Triple Conversion System	Quadruple Conversion System	Triple conversion system	SSB/AM = Double Conversion Superheterodyne FM = Triple conversion Superheterodyne	Double Conversion Superheterodyne
Intermediate Frequency	1st IF 45.05MHz, 2nd IF 8.83MHz, 3rd IF 455kHz, 4th IF 100kHz	1st IF 44.93MHz, 2nd IF 8.83MHz, 3rd IF 455kHz, 4th IF 100kHz	1st IF = 45.05MHz, 2nd IF = 8.83MHz, 3rd IF = 455kHz	1st IF = 48.055MHz, 2nd IF = 8.83MHz, 3rd IF = 455kHz (only FM)	1st IF = 8.83MHz 2nd IF = 455kHz
Sensitivity [at 10dB (S+N/N)]	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.2μV (1.8 ~ 30MHz) AM: Less than 10μV (150 ~ 500kHz) Less than 32μV (500kHz ~ 1.8MHz) Less than 2μV (1.8MHz ~ 30MHz) FM (SINAD 12dB): Less than 0.5μV (1.8 ~ 30MHz)	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.25μV (1.8 ~ 30MHz) AM: Less than 10μV (150 ~ 500kHz) Less than 32μV (500kHz ~ 1.8MHz) Less than 2μV (1.8MHz ~ 30MHz)	SSB/CW/FSK: Less than 2.5μV (100 ~ 150kHz) Less than 1μV (150kHz ~ 500kHz) Less than 4μV (500kHz ~ 1.6MHz) Less than 0.25μV (1.6 ~ 30MHz) AM: Less than 25μV(100 ~ 150kHz) Less than 13μV(150kHz ~ 500kHz) Less than 40μV(500kHz ~ 1.6MHz) Less than 2.5μV(1.6 ~ 30MHz) FM: (SINAD 12dB): Less than 0.7μV(1.6 ~ 30MHz)	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.25μV (1.8 ~ 30MHz) AM: Less than 13μV (150 ~ 500kHz) Less than 40μV (500kHz ~ 1.8MHz) Less than 2.5μV (1.8 ~ 30MHz) FM (S/N = 26dB)*: Less than 1μV (1.8 ~ 30MHz) FM (SINAD 12dB)*: Less than 0.4μV (1.8 ~ 30MHz) *with FM-430	SSB/CW = 0.25μV AM (TS-830M) = 2μV
Squelch Sensitivity	Less than −10dBμ (0.32μV)	—	SSB/CW/FM/AFSK = Less than 20μV (100 ~ 150kHz, 0.5 ~ 1.6MHz) Less than 10μV(150 ~ 500kHz) Less than 2μV(1.6 ~ 30MHz) FM = Less than 0.32μV(1.6 ~ 30MHz)	—	—
Image Ratio	More than 80dB (1.8 ~ 30MHz)	More than 80dB (1.8 ~ 30MHz)	More than 70dB(1.6 ~ 30MHz) More than 50dB(100kHz ~ 1.6MHz)	More than 70dB (1.8 ~ 30MHz) More than 50dB (FM = 3rd image ratio)	More than 60dB
IF Rejection	More than 70dB (1.8 ~ 30MHz)	More than 70dB (1.8 ~ 30MHz)	More than 70dB (1.6 ~ 30MHz) More than 50dB(100kHz ~ 1.6MHz)	More than 70dB (1.8 ~ 30MHz)	More than 80dB
Selectivity	SSB, CW, AM (narrow), FSK: 2.4kHz (−6dB), 3.6kHz (−60dB) AM (wide): 6kHz (−6dB), 15kHz (−50dB) FM: 12kHz (−6dB), 22kHz (−60dB)	SSB, CW(W), FSK(W), AM(N): 2.7kHz (−6dB), 4kHz (−60dB) AM(W): 6kHz (−6dB), 18kHz (−50dB)	SSB/CW/FSK = 2.2kHz (−6dB) 4.4kHz (−60dB) AM = 6kHz (−6dB) 18kHz (−50dB) FM = 12kHz (−6dB) 25kHz (−50dB)	SSB/CW; 2.4kHz (−6dB), 4.4kHz (−60dB), AM (with YK-88A): 6kHz (−6dB), 12kHz (−60dB) FM (with FM-430): 15kHz (−6dB), 32kHz (−60dB)	SSB, CW(W): 2.4kHz (−6dB), 3.6kHz (−60dB) AM (TS-830M): 6kHz (−6dB), 11kHz (−60dB)
Variable Frequency Range	SSB slope tuning: High-cut = more than 1500Hz Low-cut = more than 700Hz CW VBT = 600Hz ~ 2.4kHz (continuous)	SSB slope tuning: High-cut = more than 1500kHz Low-cut = more than 700Hz CW VBT = 600Hz ~ 2.4kHz (continuous)		—	VBT SSB = 500Hz ~ 2.4kHz (continuous) AM = 4.5kHz ~ 6kHz (continuous)
RIT/XIT Variable Range	±9.99kHz	RIT ±9.99kHz	More than ±1kHz	RIT: More than ±1kHz	RIT: More than ± 1.5kHz
Notch Filter Attenuation	More than 40dB at 1.5kHz	More than 40dB at 1.5kHz	More than 20dB (Audio frequency 1.5kHz)	More than 40dB	More than 40dB
Audio Output Power	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)
Audio Output Impedance	4 ~ 16Ω	4 ~ 16Ω	4 ~ 16Ω	4 ~ 16Ω	8 ~ 16Ω

	TS-530SP	TS-670
[GENERAL]		
Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	40, 15, 10, 6 meter Amateur bands
Receiver Frequency Range		500kHz~30MHz*, 50~54MHz
Mode	A3J (SSB), A1 (CW)	A3J (SSB), A1 (CW), A3 (AM) [F3 (FM)=optional]
Frequency Stability	Within 1kHz from 1 to 60 minutes after turn on. Within ±100Hz any 30 minutes period thereafter.	Better than ±30 × 10^{-6} (0°C~50°C) Within ±300Hz from 1 to 60 minutes after turn on Within 100Hz any 30 minutes period thereafter
Frequency Accuracy		Better than ±10 × 10^{-6} ±30 × 10^{-6} (0°C~+50°C)
Antenna Impedance	50~75Ω	50Ω
Power Requirements	120/220/240V AC, 50/60Hz	12.0 to 16.0VDC (13.8V nominal)
Power Consumption	Transmit 295W Receive 27W (with heater off)	Transmit: 4A approx. Receive (no signal): 1.1A approx.
Dimensions mm (inch) (Projections not included)	333 (13.3) W × 133 (5.3) H × 333 (13.3) D	270 (10.6) W × 9.6 (3.8) H × 260 (10.2) D
Weight	12.8kg (28.2 lbs.)	5.4kg (11.9 lbs.)
		*With GC-10 (Option)
[TRANSMITTER]		
Final Power Input	SSB=220W PEP, CW=180W DC	SSB/CW/(FM)=10W, AM=4W
Modulation	SSB=Balanced Modulation	SSB=Balanced Modulation AM=Low level Modulation FM=Reactance Modulation
FM Maximum Frequency Deviation	—	±5kHz (with FM-430)
FSK Shift Width	—	—
Carrier Suppression	Less than −40dB	Less than −40dB
Spurious Response	—	—
Unwanted Sideband Suppression	Better than 50dB	Better than 50dB
Third Harmonic Intermodulation Distortion	—	—
Microphone Impedance	—	500Ω~50kΩ
Frequency Response (SSB)	400~2600Hz (−6dB)	400~2600Hz (−6dB)
Harmonic Content	Less than −40dB	Less than −40dB (40, 15, 10-m) Less than −60dB (6-m)
[RECEIVER]		
Circuitry	Single Conversion Superheterodyne	SSB/CW/AM=Single Conversion Superheterodyne FM=Double Conversion Superheterodyne
Intermediate Frequency	IF=8.83MHz	SSB/CW/AM=8.83MHz FM=1st IF 8.83MHz, 2nd IF 455kHz
Sensitivity [at 10dB (S+N/N)]	SSB/CW=0.25μV	SSB/CW: Less than 0.25μV AM: Less than 2μV (with YK-88A) FM: 12dB SINAD Less than 0.4μV
Squelch Sensitivity	—	SSB/CW/AM=Less than 3.2μV FM=Less than 0.32μV (10-m, 6-m)
Image Ratio	More than 60dB	More than 50dB
IF Rejection	More than 70dB	More than 50dB
Selectivity	SSB, CW(W): 2.4kHz (−6dB), 4.2kHz (−60dB)	SSB/CW: 2.5kHz (−6dB), 6kHz (−60dB) *AM=6kHz (−6dB), 11kHz (−60dB) **FM=12kHz (−6dB), 22kHz (−60dB) *with YK-88A, **with FM-430
Variable Frequency Range	—	—
RIT/XIT Variable Range	RIT More than ±1.5kHz	RIT: More than ±1.2kHz
Notch Filter Attenuation	More than 40dB	—
Audio Output Power	1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)
Audio Output Impedance	8~16Ω	8~16Ω

	R-2000	R-5000
[GENERAL]		
Frequency Range	150kHz~30MHz	100kHz~30MHz
Mode	AM, FM, SSB, CW	AM, FM, SSB, CW, FSK
Sensitivity SSB/CW/AM S+N/N+10dB FM: S+N/N=20dB	SSB/CW: Less than 2μV (150kHz~2MHz) Less than 0.4μV (2~30MHz) Less than 1μV (118~174MHz) AM: Less than 20μV (150kHz~2MHz) Less than 4μV (2~30MHz) Less than 10μV (118~174MHz) FM: Less than 1μV (2~30MHz) Less than 2μV (118~174MHz)	SSB/CW/FSK: Less than 2.5μV (100~150kHz), 1μV (150~500kHz), 4μV(0.5~1.8MHz), 0.25μV (1.8~30MHz), *0.5μV (*108~123MHz) *0.25μV (123~174MHz) AM: Less than 25μV (100~150kHz), 10μV (150~500kHz), 32μV (0.5~1.8MHz), 2μV (1.8~30MHz) *4μV (108~123MHz) *2μV (123~174MHz) FM: Less than 0.5μV (1.8~30MHz), *1μV (108~123MHz), *0.5μV (12.3~174MHz)
Selectivity	AM(W): 6kHz (−6dB), 18kHz (−50dB) AM (N): 2.7kHz (−6dB), 5kHz (−50dB) SSB/CW: 2.7kHz (−6dB), 5kHz (−50dB) FM: 15kHz (−6dB), 30kHz (−50dB)	SSB/CW/FSK: 2.4kHz (−6dB) 4.4kHz (−60dB) AM: 6kHz (−6dB) 20kHz (−50dB) FM: 12kHz (−6dB) 25kHz (−50dB)
Image Ratio	Better than 70dB	Better than 60dB (100kHz~1.8MHz), 80dB (1.8~30MHz)
IF Rejection	Better than 70dB	Better than 60dB (100kHz~1.8MHz), 70dB (1.8~30MHz)
Frequency Stability	Within ±300Hz from 1 to 60 minutes after turn-on.	
Frequency Accuracy	±10 × 10^{-6} or better (at normal temperature)	±10 × 10^{-6} or better (at normal temperature)
Squelch Sensitivity	AM/SSB/CW: Less than 3.12μV [5μV] FM: Less than 0.5μV [1μV]	SSB/CW/AM/FSK: Less than 20μV (100~150kHz, 0.5~1.8MHz), Less than 10μV (150~500kHz, *108~123MHz) Less than 2μV (1.8~30, *123~174MHz) FM: Less than 0.32μV (1.8~30, *123~174MHz), Less than 1μV (*108~123MHz)
Audio Load Impedance	1~16Ω	8Ω
Audio Output Power	1.5W (8Ω load, 10% distortion)	1.5W (8Ω load, 10% distortion)
Antenna Impedance	50Ω/500Ω	50Ω/500Ω
Power Consumption	14W AC [16W], (no signal) 13.8V DC, 0.6A [0.8A](no signal)	40WAC, 13.8VDC, 2A (with optional DCK-2)
Power Requirement	100/120/220/240V AC, 50/60Hz 13.8V DC (with optional DCK-1)	120VAC 50/60Hz 13.8 VDC (with optional DCK-2)
Dimensions mm (inch) (Projection not included)	378 (14.8)W × 115 (4.5)H × 210(8.3)D	270(10.6)W × 96(3.78)H × 270(10.6)D
Weight	5.5kg (12.1 lbs.) approx. [ ]: with VC-10 (VHF converter unit)	5.6kg (12.3 lbs.) approx. *with VC-20 (VHF converter unit)

TH-21BT•A/31BT•A/41BT•A

[GENERAL]	
Frequency Range	TH-21BT•A 144~148MHz TH-31BT•A 220~225MHz TH-41BT•A 440~450MHz
Mode	F3 (FM)
Operating Voltage	5.8~10.0V DC
Power Requirement	7.2V DC
Current Drain	Transmit: HI less than 600mA (TH-21BT•A), 650mA (TH-31BT•A/41BT•A) LOW approx. 300mA (TH-21BT•A/41BT•A), 350mA (TH-31BT•A) Receive (no signal) approx. 28mA (TH-21BT•A), 30mA (TH-31BT•A/41BT•A)
Operating Temperature	−20°C~+50°C
Antenna Impedance	50Ω
Frequency Tolerance	Less than ±20 × 10^{-6} (−10°C~+50°C)
Dimensions mm (inch)	57(2.24)W × 120(4.72)H × 28(1.10)D
Weight	290g(0.64 lbs.) approx. with battery and antenna
[TRANSMITTER]	
RF Output Power	HL=1.0W LO=150mW approx.
Modulation	Reactance Modulation
Maximum Frequency Deviation	±5kHz
Spurious Radiation	Less than −60dB
[RECEIVER]	
Circuitry	Double Convertion Superheterodyne
Intermediate Frequency	1st IF 16.3MHz (TH-21BT•A),16.9MHz (TH-31BT•A), 21.6MHz (TH-41BT•A)
Sensitivity	12dB SINAD Less than 0.25μV
Selectvity	More than 12kHz (−6dB) (TH-21BT•A/31BT•A), 15kHz (−6dB) (TH-41BT•A) Less than 28kHz (−40dB) (TH-21BT•A/31BT•A), 30kHz (−40dB) (TH-41BT•A)
Spurious Response	Less than −40dB
Squelch Sensitivity	Less than 0.25μV
Audio Output Power	More than 250mW (8Ω load at 10% distortion)

[GENERAL]
Frequency Range
Mode
Power Requirement
Power Consumption .
Operating Temperature
Antenna Impedance
Micorphone Impedance
External Speaker Impeda
Dimensions mm (inch)
(Projections not included
Weight

[TRANSMITTER]
Final Power Output .
Modulation . . . .
Maximum Frequency
Deviation
Spurious Radiation .
Modulation Distortion

[RECEIVER]
Circuitry
Intermediate Frequency
Sensitivity
Selectivity
Spurious Response
Squelch Sensitivity .
Scan Stop Level . .
Audio Output Level . . . .

	TH-205AT	TH-215A	TH-315A	TH-415A	TR-50
[GENERAL]					
Frequency Range	RX 141,000 ~ 162,995MHz* TX 144—148MHz	RX 141,000 ~ 162,995MHz* TX 144 ~ 148MHz	RX 215,000 ~ 229,995MHz* TX 220,000 ~ 224,995MHz*	440 ~ 450MHz	1260 ~ 1300MHz
Mode	F3 (FM)	F3 (FM)	F3 (FM)	F3 (FM)	F3 (FM)
Operating Voltage	8.4V DC Battery terminal: 6.3 ~ 15V DC DC IN jack: 7.2 ~ 16V DC	8.4V DC Battery terminal: 6.3 ~ 15V DC DC IN jack: 7.2 ~ 16V DC	8.4V DC Battery terminal: 6.3 ~ 15V DC DC IN jack: 7.2 ~ 16V DC	8.4V DC Battery terminal: 6.3 ~ 15V DC DC IN jack: 7.2 ~ 16V DC	13.8V DC +15%, –25% 13.8V DC
Current Drain	Transmit H1: Less than 1.7A (with PB-1) LO: Less than 0.7A Receive (no signal): 50mA approx. 20mA approx. (at automatic saving operation)	Transmit H1: Less than 1.7A (with PB-1) LO: Less than 0.7A Receive (no signal): 50mA approx. 11mA approx. (at automatic saving operatoin)	Transmit H1: Less than 1.7A (with PB-1) LO: Less than 0.7A Receive (no signal): 55mA approx. 13mA approx. (at automatic saving operation)	Transmit H1: Less than 2.0A (with PB-1) LO Less than 0.9A Receive (no signal): 55mA approx. 13mA approx. (at automatic saving operatoin)	Transmit: 850mA approx. Receive (no signal) 180mA approx.
Grounding	Negative	Negative	Negative	Negative	
Operating Temperature	–20°C ~ +50°C	–20°C ~ +50°C	–20°C ~ +50°C	–20°C ~ +50°C	–20°C ~ +50°C
Antenna Impedance	50Ω	50Ω	50Ω	50Ω	50Ω
Dimensions (Projections not included)	67(2.64)W × 173(6.81)H × 37(1.46)Dmm (inch)	67(2.64)W × 173(6.81)H × 37(1.46)Dmm (inch)	67(2.64)W × 173(6.81)H × 37(1.46)Dmm (inch)	67(2.64)W × 173(6.81)H × 37(1.46)Dmm (inch)	123(4.84)W × 51(3.01)H × 192(7.56)D
Weight	520g (1.15 lbs) (with PB-2 and antenna)	540g (1.19 lbs) (with PB-2 and antenna)	550g (1.21 lbs) (with PB-2 and antenna)	560g (1.23 lbs) (with PB-2 and antenna)	1.2kg (2.65 lbs.) with battery and antenna
[TRANSMITTER]					
RF Output Power	HI = 5W (with PB-1) 2.5W (with PB-2) 1.5W (with PB-3,4) LO = 0.5W approx.	HI = 5W (with PB-1) 2.5W (with PB-2) 1.5W (with PB-3,4) LO = 0.5W approx.	HI = 5W (with PB-1) 2.5W (with PB-2) 1.5W (with PB-3, 4) LO = 0.5W approx.	HI = 5W (with PB-1) 2.5 (with PB-2) 1.5W (with PB-3,4) LO = 0.5W approx.	1W
Modulation	Variable Reactance Direct Shift	Variable Reactance Direct Shift	Variable Reactance Direct Shift	Variable Reactance Direct Shift	Reactance Modulation
Frequency Tolerance	Less than $\pm 20 \times 10^{-6}$ (–10°C ~ +50°C	Less than $\pm 20 \times 10^{-6}$ (–10°C ~ +50°C	Less than $\pm 20 \times 10^{-6}$ (–10°C ~ +50°C)	Less than $\pm 20 \times 10^{-6}$ (–10°C ~ +50°C)	
Maximum Frequency Deviation	±5kHz	±5kHz	±5kHz	±5kHz	±5kHz
Spurious Radiation	Less than –60dB	Less than –60dB	Less than –60dB	Less than –60dB	Less than –40dB
[RECEIVER]					
Circuitry	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Triple Conversion Superheterodyne
Intermediate Frequency	1st IF 16.3MHz 2nd IF 455kHz	1st IF 16.3MHz 2nd IF 455kHz	1st IF 16.9MHz 2nd IF 455kHz	1st IF 30,825MHz 2nd IF 455kHz	1st IF 139MHz, 2nd IF 20.935MHz, 3rd IF 455kHz
Sensitivity	12dB SINAD less than 0.2µV	12dB SINAD less than 0.2µV	12dB SINAD less than 0.2µV	12dB SINAD less than 0.25µV	12dB SINAD less than 0.3µV
Selectivity	More than 12kHz (–6dB) Less than 28kHz (–40dB)	More than 12kHz (–6dB) Less than 24kHz (–40dB)	More than 12kHz (–6dB) Less than 24kHz (–40dB)	More than 12kHz (–6dB) Less than 24kHz (–40dB)	More than 15kHz (–6dB) Less than 30kHz (–40dB)
Spurious Response	Better than 50dB	Better than 50dB	Better than 50dB	Better than 50dB	Less than –40dB
Squelch Sensitivity	Less than 0.1µV	Less than 0.1µV	Less than 0.1µV	Less than 0.16µV	Less than 0.25µV
Audio Output Power	More than 350mW (at 10% distortion and 8Ω load	More than 350mW (at 10% distortion and 8Ω load	More than 350mW (at 10% distortion and 8Ω load)	More than 350mW (at 10% distortion and 8Ω load	More than 1W (8Ω at 10% distortion)

*Specifications are guaranteed for 144-148MHz Amateur Band only.

TM-221A	TM-321A	TM-421A	TW-4100A	TM-2570A/2550A/2530A	TM-3530
RX : 138—174MHz* TX : 144—148MHz	RX: 215-230MHz TX: 220-225MHz	438 ~ 450MHz*	VHF: RX 142 ~ 149MHz* TX 144 ~ 148MHz UHF: 440 ~ 450MHz	144 ~ 148MHz	220 ~ 225MHz
F3, (FM)	F3, (FM)	F3, (FM)	F3, (FM)	F3, F2 = in DCL mode (FM)	F3, F2 = with DCL function (FM)
13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)
Transmit HI = 9.5A Receive (no signal) Less than 0.4A	Transmit HI = 6.5A Receive (no signal) Less than 400mA	Transmit HI = 8.5A Receive (no signal) Less than 0.4A	Transmit (max): 9.5A Receive (no signal): 0.6A	Transmit: HI = 16A(TM-2570A), 9.5A (TM-2550A), 6.5A(TM-2530A) Receive (no signal): 0.8A(TM-2570A), 0.6A(TM-2550A/30A)	Transmit: HI = 6.5A Receive (no signal): 0.6A
–20°C ~ +60°C	–20°C ~ +60°C	–20°C ~ +60°C	–20°C ~ +60°C	–20°C ~ +50°C	–20°C ~ +60°C
50Ω	50Ω	50Ω	50Ω (VHF/UHF)	50Ω	50Ω
500 ~ 600Ω	500Ω	500 ~ 600Ω	500 ~ 600Ω	500 ~ 600Ω	500 ~ 600Ω
8Ω	8Ω	8Ω	8Ω	8Ω	8Ω
140(5.51)W × 40(1.57)H × 179(7.05)D	140(5.51)W × 40(1.57)H × 179(7.05)D	140(5.51)W × 40(1.57)H × 179(7.05)D	150(5.91)W × 50(1.97)H × 200(7.87)Dmm (inch)	180(7.09)W × 60(2.36)H × 250(9.84)D/215(8.46)D/195(7.68)D	180(7.09)W × 60(2.36)H × 195(7.68)Dmm (inch),
1.2kg (2.6 lbs.)	1.2kg (2.65 lbs)	1.2kg (2.6 lbs.)	1.8kg (3.97 lbs.)	2.35kg(5.18 lbs.)/2.0kg(4.41 lbs.)/ 1.8kg (3.97 lbs.)	1.8 (3.97)kg (lbs)
HI: 45W LO: 5W approx.	HI: 25W LO: 5W approx.	HI: 35W LO: 5W approx.	HI 45W (VHF), 35W (UHF) LO 5W approx.	HI = 70W(TM-2570A), 45W(TM-2550A), 25W(TM-2530A), LO = 5W approx.	HI: 25W, LO: 5W approx.
Reactance Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation
±5kHz	±5kHz	±5kHz	±5kHz	±5kHz	±5kHz
Less than –60dB	Less than –60dB	Less than –60dB	Less than –60dB	Less than –60dB	Less than —60dB
Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz)	Less than 3% (300 ~ 3000Hz)	Less than 3% (300 ~ 3000Hz)
Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne
1st 1F 10.695MHz 2nd 1F 455kHz	1st 1F 30.825MHz 2nd 1F 455Hz	1st 1F 21.6MHz 2nd 1F 455kHz	1st 1F 30.825 2nd 1F 455kHz	1st 1F 10.695MHz 2nd 1F 455kHz	1st 1F 20.935MHz 2nd 1F 455kHz
12dB SINAD Less than 0.16µV	12dB SINAD Less than 0.16µV	12dB SINAD Less than 0.16µV	12dB SINAD Less than 0.16µV (VHF) 0.2µV (UHF)	12dB SINAD Less than 0.25µV	12dB SINAD Less than 0.25µV
More than 12kHz (–6dB), Less than 26kHz (–60dB)	More than 12kHz (–6dB) Less than 26kHz (–60dB)	More than 12kHz (–6dB), Less than 26kHz (–60dB)	More than 15kHz (–6dB), Less than 30kHz (–60dB)	More than 14kHz (–6dB), Less than 30kHz (–60dB)	More than 12kHz (–6dB) Less than 24kHz (–60dB)
Less than –70dB (except IF/2)	Less than –70dB	Less than –65dB (except IF/2)	Less than –60dB (except IF/2)	Less than –70dB (except IF/2)	Better than 70dB (except 1F/2)
Less than 0.1µV	Less than 0.1µV	Less than 0.1µV	Less than 0.16µV	Less than 0.1µV	Less than 0.125µV Less than 0.2µV
More than 2W (at 8Ω 5% distortion)	More than 2W (at 8Ω 5% distortion)	More than 2W (at 8Ω 5% distortion)	More than 2.0W (at 8Ω 5% distortion)	More than 2.0W (at 8Ω 10% distortion)	More than 2.0W (at 8Ω load, 5% distortion)

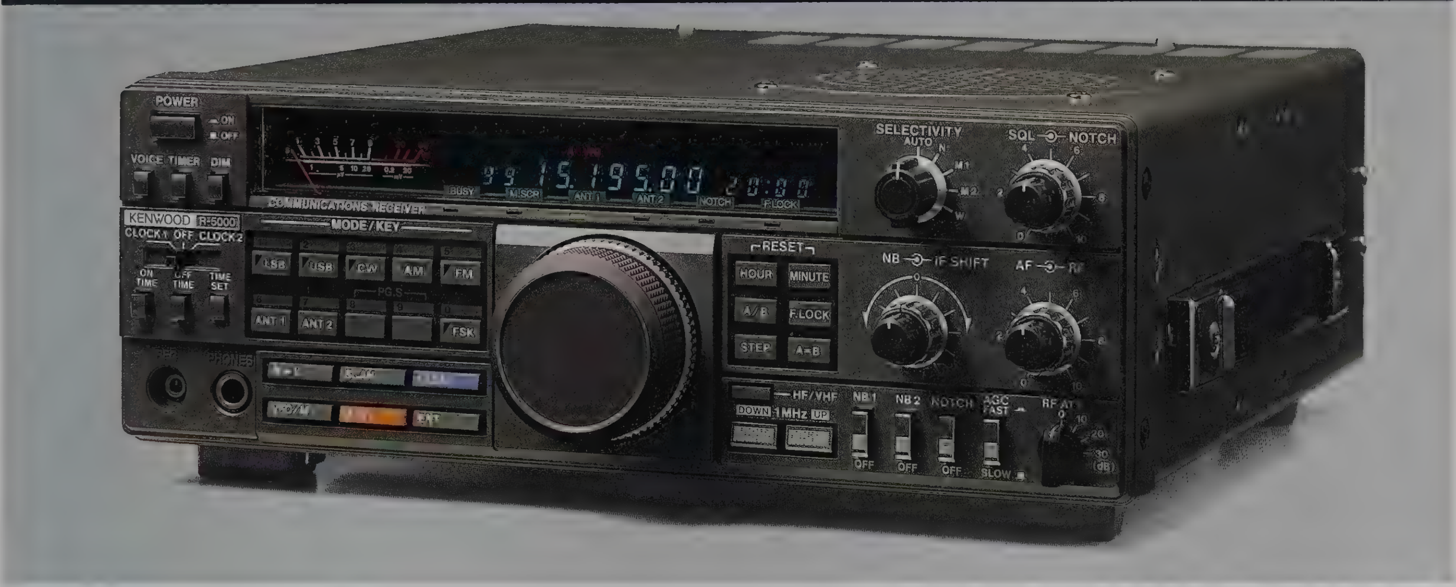
*Specifications are guaranteed for Amateur Band only

	TS-711A	**TS-811A**	**TR-751A**	**TR-851A**
[GENERAL]				
Frequency Range	144 ~ 148MHz	TS-811A 430 ~ 450MHz	144 ~ 148MHz	430 ~ 440MHz
Mode	A3J (SSB), A1 (CW) F3/F2 = with DCS function (FM)	A3J (SSB), A1 (CW) F3/F2 = with DCS function (FM)	A3J (SSB), A1 (CW) F3/F2 = with DCL system (FM)	A3J (SSB), A1 (CW) F3/F2 = with DCL system (FM)
Antenna Impedance	50Ω	50Ω	50Ω	50Ω
Temperature Range	−10°C ~ +50°C	−10°C ~ +50°C	−20°C ~ +60°C	−20°C ~ +60°C
Power Requirements	120/220/240V AC 50/60Hz 13.8V DC (12 ~ 16V) Negative grounding	120/220/240V AC 50/60Hz 13.8V DC (12 ~ 16V) Negative grounding	13.8V DC (±15%) Negative grounding	13.8V DC (±15%) Negative grounding
Power Consumption	Transmit: 170W AC, 6.5A (13.8V DC) Receive (no signal): 50W AC, 1.2A (13.8V DC)	Transmit: 220W AC, 8.0A (13.8V DC) (TS-811A) Receive (no signal): 50W AC, 1.3A (13.8V DC)	Transmit: HI Less than 6.0A Receive (no signal) = 0.8A	Transmit: HI less than 7.5A Receive (no signal): 0.8A
Frequency Tolerance	SSB/CW = Less than ±3 PPM FM = Less than ±5 PPM	SSB/CW = Less than ±3 PPM (430 ~ 440MHz) Less than ±5 PPM (440 ~ 450MHz) FM = Less than ±5 PPM	Less than ±15PPM (−20°C ~ +60°C)	Less than ±20 PPM (−20°C ~ +60°C)
Frequency Stability	Within ±300Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	Within ±1200Hz (430 ~ 440MHz) from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	Within ±400Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	— —
Microphone Impedance	500 ~ 600Ω	500 ~ 600Ω	500 ~ 600Ω	500 ~ 600Ω
Dimensions mm (inch) (Projections not included)	270 (10.6) W × 96 (3.78) H × 260 (10.2) D	270 (10.6) W × 96 (3.78) H × 260 (10.2) D	180 (7.09)W × 60 (2.36)H × 195 (7.68)D	180 (7.09) W × 60 (2.36)H × 215 (8.46) D
Weight	7.1kg (15.65 lbs.) approx.	7.1kg (15.65 lbs.) approx.	2.1kg (4.63lbs.) approx.	2.5kg (5.51 lbs) approx.
[TRANSMIT]				
RF Output Power	25W	25W	HI = 25W LO = 5W	HI = 25W LO = 5W
Modulation	SSB = Balanced Modulation FM = Reactance Modulation	SSB = Balanced Modulation FM = Reactance Modulation	SSB = Balanced Modulation FM = Reactance Modulation	SSB = Balanced Modulation FM = Reactance Modulation
Spurious Radiation	Less than −60dB	Less than −60dB	Less than −60dB	Less than −60dB
Maximum Frequency Deviation	±5kHz	±5kHz	±5kHz	±5kHz
Carrier Suppression	Less than −40dB	Less than −40dB	Less than −40dB	Less than −40dB
Unwanted Sideband Suppression	Better than 40dB	Better than 40dB	Better than 40dB	Better than 40dB
Modulation Distortion	Less than 3% (300 ~ 3000Hz) (FM modulation 60%)	Less than 3% (300 ~ 3000Hz) (FM modulation 60%)	Less than 3% (300 ~ 3000Hz)	Less than 3% (300 ~ 3000Hz)
[RECEIVE]				
Circuitry	Double Conversion Superheterodyne	Double Conversion Superheterodyne	SSB/CW: Single Conversion Superheterodyne FM: Double Conversion Superheterodyne	SSB/CW: Double Conversion Superheterodyne FM: Triple Conversion Superheterodyne
Intermediate Frequency	1st IF 30.265MHz 2nd IF 10.695MHz (SSB/CW) 455kHz (FM)	1st IF 30.265MHz 2nd IF 10.695MHz (SSB/CW) 455kHz (FM)	1st IF 10.695MHz 2nd IF 455kHz (FM)	1st 1F 41.415MHz 2nd 1F 10.695 MHz 3rd IF 455 kHz (FM)
Sensitivity	SSB/CW = 10dB S + N/N Less than 0.16μV FM = 12dB SINAD Less than 0.22μV	SSB/CW = 10dB S + N/N Less than 0.14μV (TS-811A) FM = 12dB SINAD Less than 0.22μV (TS-811A),	SSB/CW = 10dB S + N/N Less than 0.13μV FM = 12dB SINAD Less than 0.2μV	SSB/CW = 10dB S + N/N Less than 0.11μV FM = 12dB SINAD less than 0.18μV
Selectivity	SSB/CW = More than 2.2kHz (−6dB), Less than 4.8kHz (−60dB) FM = More than 12kHz (−6dB), Less than 24kHz (−60dB)	SSB/CW = More than 2.2kHz (−6dB), Less than 4.8kHz (−60dB) FM = More than 12kHz (−6dB), Less than 24kHz (−60dB)	SSB/CW = More than 2.2kHz (−6dB) Less than 4.8kHz (−60dB) FM = More than 12kHz (−6dB) Less than 24kHz (−60dB)	SSB/CW = More than 2.2kHz (−6dB), Less than 4.8kHz (−60dB) FM = More than 12kHz (−6dB), Less than 24kHz (−60dB)
RIT Variable Range	±9.9kHz	—	More than ±1.2kHz	More than ±1.2kHz
Spurious Response	Better than 70dB	Better than 60dB	Better than 70dB (except IF/2)	Better than 60dB (except IF/2)
Squelch Sensitivity	Less than 0.16μV	Less than 0.16μV	Less than 0.1μV	Less than 0.09μV
Scan Stop Level	Less than 0.2μV	Less than 0.2μV		
Audio Output Power	More than 2.0W (5% distortion)	More than 2.0W (5% distortion)	More than 2.0W (8Ω at 5% distortion)	More than 2.0W (8Ω at 5% distortion)
Audio Output Impedance	8Ω	8Ω	8Ω	8Ω

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to advances in technology.
KENWOOD reserves the right to add or delete models or products without notice to maintain its competitive position in the market.
Products included in this catalog are products that were a part of KENWOOD's product line as of the date of this printing.

R-5000

COMMUNICATIONS RECEIVER



The R-5000 is a competition class communications receiver with superior dynamic range, having every conceivable feature, and is designed to receive all modes (SSB, CW, AM, FM, FSK) from 100 kHz to 30 MHz. With the optional VC-20 VHF Converter Unit coverage of the 108—174 MHz frequency range is provided.

■ Covers 100kHz to 30 MHz in 30 bands, optional 108 to 174MHz coverage

The R-5000 covers 100kHz to 30 MHz in 30 bands. An advanced digital PLL synthesizer system provides outstanding frequency stability and accuracy. Through the use of this advanced microprocessor technology, frequency, band and mode data of stations in the 108 to 174MHz range may be tuned, displayed, stored in memory, recalled, and scanned.

■ Superior dynamic range receiver circuit

Exclusive Kenwood DynaMix system ensures an honest 102 dB dynamic range. (14 MHz, 500 Hz bandwidth, 50 kHz.) spacing.

■ Outstanding receiver performance and sensitivity specifications

The R-5000 has been specifically designed to provide high performance receiver specifications in sensitivity, selectivity and stability with superior dynamic range, using the latest technology.

■ High stability frequency control

The R-5000 uses a microcomputer controlled digital PLL circuit which controls frequency in 10Hz steps using a single crystal oscillator providing accurate and stable frequency control.

■ All-mode operation

Modes of operation include SSB, CW, AM, FM and FSK. International Morse Code confirms the selected mode.

■ 10Hz step dual digital VFOs

Built-in 10Hz (100Hz in AM, FM mode) step dual digital VFOs operate independently of each other, allowing ease of operation in different modes or frequencies without the need for separate VFO.

■ Dual high and low impedance antenna terminal

A low impedance (50 ohms) terminal and a high impedance (50/500 ohms) connector are provided.

■ Superb interference reduction

(1) Dual IF Crystal Filter SSB Improves Operation
(2) IF Shift Circuit
(3) Built-in Tunable NOTCH Filter
(4) Dual-mode noise blanker

■ Selectable IF filters

The R-5000 offers a fully flexible system of IF filter selection when optional filters are installed.

■ 100 memory channels

Store mode, frequency, antenna selection.

■ Memory scroll

A convenient "memory scroll" function may be used to check memory channel data or to find the vacant channel data without changing operating frequency and mode.

■ Keyboard frequency selection

Optional Accessories

DCK-2: *DC power cable kit with cigar lighter plug*
HS-5/6/7: *Headphones*
IF-232/IC-10: *Interface Unit*
MB-430: *Mobile Mount*
SP-430: *External Speaker*
VC-20: *VHF Converter Unit The VC-20 covers 108—174 MHz which includes AIR Band, 2-m Amateur Band, Marine Band, and weather channels, as well as Business Band.*

VS-1: *Voice Synthesizer Unit*
YK-88A-1: *6 kHz AM Filter*
YK-88SN: *1.8 kHz Narrow SSB Filter*
YK-88C: *500 Hz CW Filter*
YK-88CN: *270 Hz Narrow CW Filter*

■ Memory scan and programmable band scan

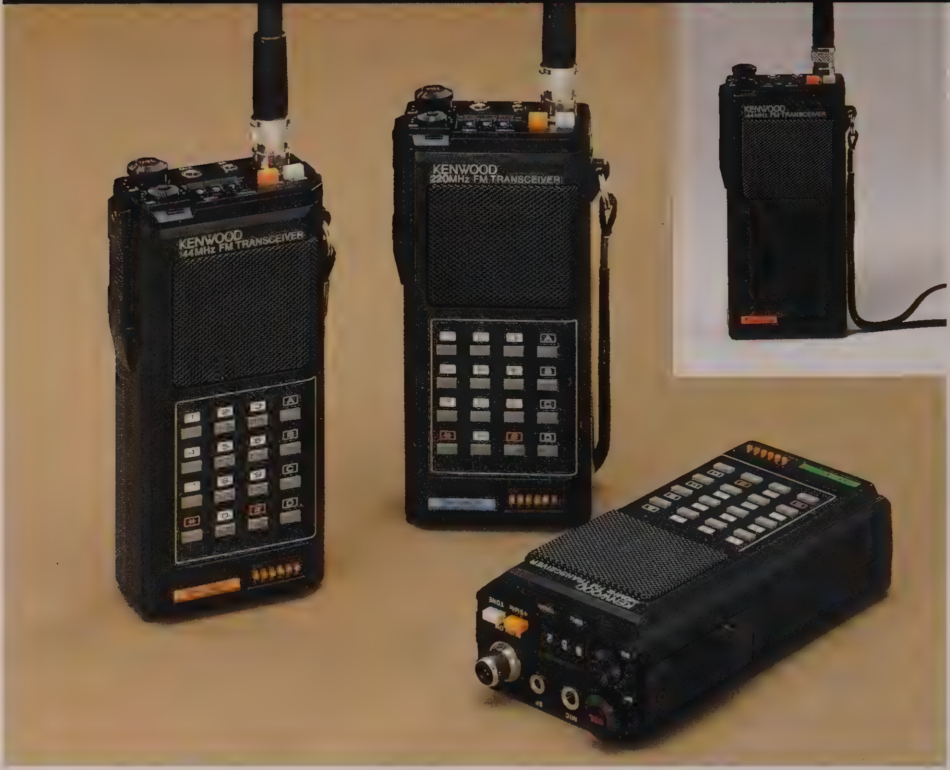
(1) Memory scan plus programmable memory channel lock-out
(2) Programmable band scan plus center stop function

- **Dual 24-hour quartz clocks, with timer**
- **Optional VS-1 "voice synthesizer unit"**
- **Optional personal computer control** (IF-232C/IC-10) *Software is not available from KENWOOD
- **Rechargeable memory back-up battery**
- **Built-in AC power supply and optional 13.8 VDC operation**
- **Large top-mounted speaker**
- **Switchable AGC switch (fast/slow)**
- **RF attenuator**
- **"F.LOCK" switch**

TH-21BT·A/31BT·A/41BT·A

144MHz 220MHz 440MHz

FM POCKET TRANSCEIVER



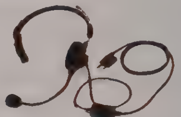
Exemplifying KENWOOD's use of the most advanced electronic technology, the DIP switch programmable CTCSS encoder TH-21BT, TH-31BT TH-41BT are ultra-compact, slim, and lightweight FM pocket/ handheld transceivers. They feature high-impact molded cases, molded-in color, and are designed to pack maximum performance and operating convenience into a single compact package. Also available are the TH-21A, TH-31A and TH-41A without DTMF pad. (TU-6 CTCSS encoder optional.)

KENWOOD 144MHz FM TRANSCEIVER

- **Ultra-compact, and lightweight**
  Cabinet dimensions are only 57 (2.24)W × 120 (4.72)H × 28(1.1)D mm (inch), weighs only 290g (0.64lbs), including standard PB-21 battery and antenna.
- **One watt RF output, with HI/LO power switch**
  Allows operation at maximum power (1W), or at reduced power (150mW), for extended battery life.
- **Expanded frequency coverage (TH-21BT/A)**
  Covers 141.000 to 150.995MHz in 5kHz steps, includes certain MARS and CAP frequencies.
  *Specifications are guaranteed for the 144—148MHz Amateur band only.
- **Dip switch programmable CTCSS encoder built-in (TH-21BT/31BT/41BT)**
  Front panel Dip switch selects desired sub-audible tone.
- **Easy-to-operate, functional design**
  Three digit thumbwheel frequency selection and handy top-mounted controls increase operating ease.
- **Repeater offset switch**
  TH-21BT/A: ±600kHz, simplex.
  TH-31BT/A: −1.6MHz, reverse, simplex.
  TH-41BT/A: ±5MHz, simplex.
- **Rugged, high impact molded case**
  The high impact case is scuff resistant, to retain its attractive styling.
- **High performance receiver/transmitter specifications**
  The TH-21BT/A, TH-31BT/A, and TH-41BT/A have been designed to provide the highest in receiver/transmitter circuit performance through the use of advanced technology.
- **Choice of standard or optional heavy duty batteries**
  The heavy duty battery PB-21H greatly increases operating time, and switching to the low power position extends operating time even further.
- **Optional Rapid Charger**
  The BC-6 charges up to two battery packs (either the PB-21 or PB-21H) to almost 100% capacity in approximately one hour.
- **Optional StubbyDuk Antenna**
- **Available with 16-key auto-patch (TH-21BT, TH-31BT, and TH-41BT)**
- **Broad selection of accessory items**
- **QUICK-CHANGE battery case**

Optional Accessories

AJ-3: *Coaxial Cable Adaptor Thread-loc to BNC Female*
BC-2: *Wall Charger for PB-21H*
BC-6: *Quick Battery Charger*
BH-3: *Belt-hook*
BT-2: *AAA Manganese/Alkaline Battery Case*
DC-21: *DC-DC Converter for Mobile Use*
EB-2: *External C Manganese/Alkaline Battery Case*
HMC-1: *Headset with VOX*



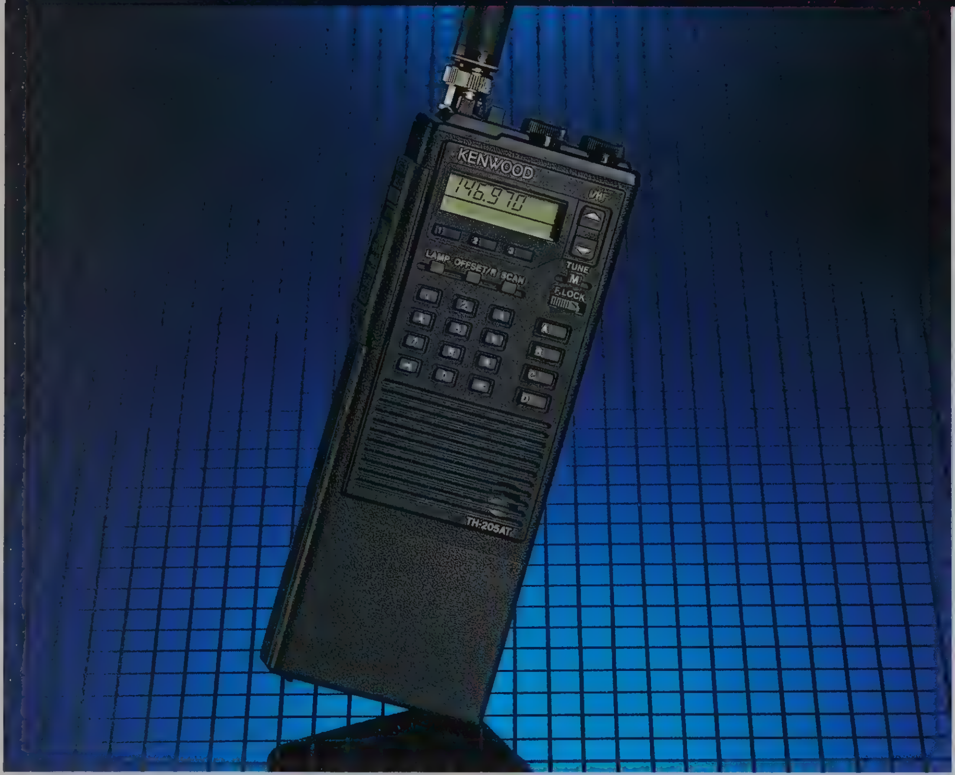
PB-21: *Ni-Cd Battery, 180mAh*
PB-21H: *Heavy Duty Ni-Cd Battery, 500mAh*

RA-6/7: *VHF/UHF Antennas*
RA-8A/9A/10A: *144/220/440MHz StubbyDuk*

SMC-30: *Speaker Microphone*
SC-8: *Soft Case with Belt Hook*
SC-8T: *Soft Case with Belt Hook 16-key Auto-Patch Version.*
TU-6: *CTCSS Tone Unit (TH-21A/31A/41A)*
VB-2530: *25W, 2-m Power Amplifier (TH-21BT/A)*

TH-205AT

144MHz FM HANDHELD TRANSCEIVER



The TH-205AT 2-m FM hand held transceiver has been specifically designed to be the ultimate in an affordable "KENWOOD Quality" hand-held transceiver. The five watts RF output power (with optional PB-1) assures reliable communications under the most severe operating conditions. Frexibility of use is further expanded through availability of a wide selection of optional accessories.

■ **Wide receiver frequency coverage.**

Receives from 141 to 163 MHz in 5 kHz steps including the weather channels. It has excellent specifications over the entire range of frequencies.

*Specifications are guaranteed for 144—148 MHz Amateur Band only.

■ **High performance receive/transmit specifications.**

The TH-205AT has been specifically designed to provide the highest in receive/transmit performance consistent with compact size, using KENWOOD's advanced engineering.

■ **Wide range of battery options.**

Standard equipment PB-2 (500 mAh, 8,4 VDC) or optional PB-3 (800 mAh, 7.2 VDC), PB-1 (800 mAh, 12 VDC), PB-4 (1600 mAh, 7.2 VDC), batteries may be used with the TH-205AT.

■ **Easy-to-change twist-lok battery case.**

The KENWOOD twist-lok battery changing system allows battery change to be very quick and easy, assuring maximum reliablility and convenience.

■ **Five watts RF output (with optional PB-1), with HI/LO power switch.**

The TH-205AT provides a powerful 5 watts RF output when operated with optional PB-1.

■ **Wide range power supply with DC power terminal operates from 7.2 to 16 VDC.**

Power supply range allows operation from 7.2 VDC to 16 VDC for convenience in using the transceiver from the mobile to handheld use.

■ **Auto battery saving circuit.**

Built-in auto battery saving circuit increases battery life.

■ **Programmable CTCSS tone encode/decode unit.**

The optional TSU-3 sub-tone unit provides 37 selectable CTCSS frequencies by the use of dip-switch on the unit.

■ **Repeater offset.**

Transmitter offset (±600 kHz, or simplex) is selected by the offset switch. Shift information may be stored in memory.

■ **3 memories with quick memory recall.**

Three memory channels allow storage of frequency and repeater offset. Simply push the memory channel number to recall the stored frequency.

■ **Easy-to-read LCD display.**

Frequency, repeater offset, memory channel, on air, busy and BATT (battery warning indicator).

■ **Easy check monitor switch.**

A monitor switch is provided to monitor the channel for activity prior to transmitting.

■ **High efficiency, high quality speaker.**

350 mW of audio output power combined with a highly efficient speaker permits use under less than ideal ambient noise level conditions.

■ **"F. Lock" switch.**

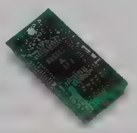
F. Lock switch prevents accidental loss of selected frequency when in the "LOCK" position.

Optional Accessories

BC-7: *Rapid Charger*
BC-8: *Compact Charger*
BH-5: *Swivel Mount*
BT-5: *AA Manganese/Alkaline Battery Case*
HS-7: *Micro Headphones*
LH-4: *Deluxe Leather Case (for PB-2,3)*
LH-5: *Deluxe Leather Case (for PB-1,4)*
MB-4: *Mobile Mount*
PB-1: *Ni-Cd Battery (12 VDC 800 mAh)*
PB-2: *Ni-Cd Battery (8.4 VDC 500 mAh)*
PB-3: *Ni-Cd Battery (7.2 VDC 800 mAh)*
PB-4: *Ni-Cd Battery (7.2 VDC 1600 mAh)*

PG-2V: *DC Cable for 12V operation*
PG-3D: *Filtered Cigar Lighter Cord*

RA-3: *Telescoping Antenna*
SC-12: *Soft Case (for PB-2,3)*
SC-13: *Soft Case (for PB-1,4)*
SMC-30: *Speaker Microphone*
TSU-3: *Programmable CTCSS Tone Encode/ Decode Unit.*



TH-215A/315A/415A

144MHz 220MHz 440MHz

FM HANDHELD TRANSCEIVER

KENWOOD
146.370
224.980
448.525
LAMP
OFFSET/F
R/TONE F
ENTER
SCAN
TH-215A
TH-315A
TH-415A

The TH-215A 144MHz TH-315A 220MHz and TH-415A 440MHz FM handheld transceivers have been specifically designed to be the handheld transceivers that "Have it All." The 5-watt RF output power (with optional PB-1) assures reliable communications under the most severe operating conditions. An exciting new series of "professional" accessories is available, including swivel belt hooks, mobile brackets, and new battery packs.

Wide receiver frequency coverage

Receives from 141 to 163 MHz in 5 kHz steps including Weather Channels. Transmitter covers 144—148MHz Amateur Band. (Modifiable to cover 141—151MHz for certain MARS and CAP operation. (MARS or CAP permit required))

The TH-315A receives from 215 to 230MHz and transmits from 220 to 225MHz.

*Specifications are guaranteed for the Amateur Band only.

Five watts RF output (with optional PB-1), with HI/LO power switch

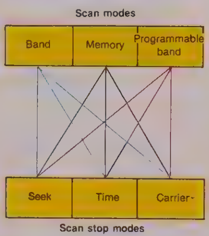
Provides a powerful 5 watts RF output when operated with optional PB-1, HI/LO power switch allows operating at reduced power (0.5 W approx.), for extended battery life.

Wide range power supply with DC IN terminal operates from 7.2 to 16 VDC

Power supply range allows operation from 7.2 VDC to 16 VDC for convenience in using the transceiver from optional mobile to handheld use.

Easy-to-operate multi-scan function

The TH-215A, TH-315A and TH-415A offer a fully flexible system of scan functions, through use of a convenient "scan map" on the LCD display. The 3×3 scan modes include band, memory and programmable band scans with 3 scan stop modes.



•Scan modes
Band Scan/Memory Scan plus Memory channel Lock-out/Programmable Band Scan

•Scan stop modes
Time Operated Resume/ Carrier operated resume/ Seek-operated resume.

Wide range of battery options

The PB-1 (800 mAh 12 VDC), PB-2 (500 mAh 8.4 VDC), PB-3 (800 mAh 7.2 VDC), PB-4 (1600 mAh 7.2 VDC) batteries may be used with the TH-215A, TH-315A and TH-415A.

New twist lock positive connect locking Battery Case.

The KENWOOD twist-lok battery changing system allows battery change to be very quick and easy.

Selectable CTCSS tone encoder built-in

Any one of the 38 sub-tone frequencies may be selected using UP/DOWN keys. A selected sub-tone frequency may be stored in the memroy channel. The optional TSU-4 "Programmable Tone Decoder" unit prvides 37 CTCSS tone squelch operation.

New large, easy-to-read LCD display

A new LCD display is provided, for best visibility in direct sunlight. A light is provided for night time viewing.

Super versatile memory channels including an odd split channel

Ten momory channels allow storage of frequency, frequency step (5—25 kHz in 5 kHz steps) **any offset** (100 kHz—9.9 MHz in 100 kHz steps) sub-tones, and reverse switch position.

Memory channel "O" stores transmit and receive frequencies independently for odd split operation.

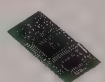
- **Intelligent 2-way battery saver circuit**
- **Easy memory recall**
- **Easy check monitor switch**
- **Frequency lock function**
- **Audible beeper to confirm keypad operation**

Optional Accessories

BC-2 (for PB-2): *Wall Charger*
BC-7: *Rapid Charger (for PB-1～4)*
BC-8: *Compact Charger (for PB-1～4)*

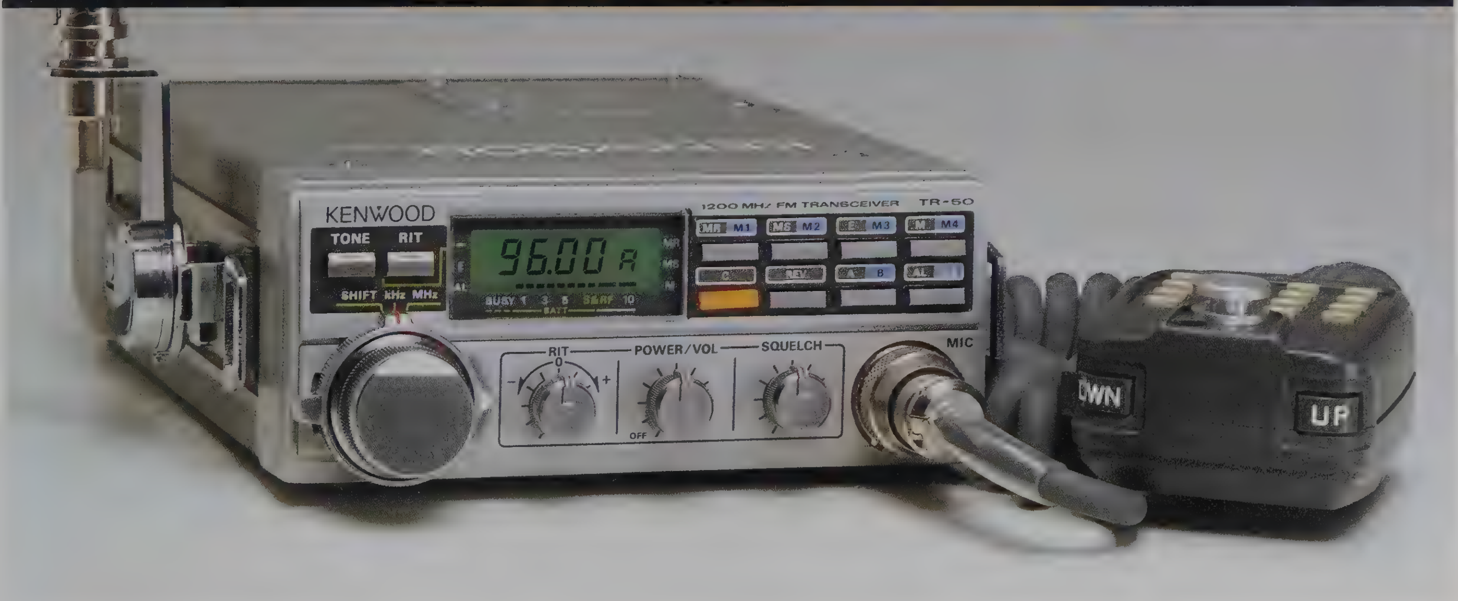
BH-5: *Swivel Mount*
BT-5: *AA Manganese/Alkaline Battery Case (holds 6 cells)*
HS-7: *Micro Headphones*
LH-4 (for PB-2,3): *Deluxe Leather Case*
LH-5 (for PB-1,4): *Deluxe Leather Case*
MB-4: *Mobile Mount*
PB-1: *NiCd Battery (12 VDC 800 mAh)*
PB-2: *NiCd Battery (8.4 VDC 500 mAh)*
PB-3: *NiCd Battery (7.2 VDC 800 mAh)*
PB-4: *NiCd Battery (7.2 VDC 1600 mAh)*
PG-2V: *Extra DC Cable*
PG-3D: *Filtered Cigar Lighter Cord*
RA-3: *2-m Telescoping Antenna*
SC-12: *Soft Case (for PB-2,3)*
SC-13: *Soft Case (for PB-1,4)*

SMC-30: *Speaker Microphone*
VB-2530: *2-m, 25W Amplifier (1～4W input)*
TSU-4: *Programmable CTCSS Tone Decode Unit*



TR-50

1200MHz FM PORTABLE TRANSCEIVER



The TR-50 is a multi-purpose, portable FM transceiver, designed for use in the 1200MHz Amateur band. New microprocessor controlled operating features assure maximum flexibility and ease of operation.

- **Multi-purpose portable type transceiver with an adjustable 1/4 wave sleeve antenna**

Designed to contain the battery and antenna, all in one compact package. An 8 position adjustable antenna mounting bracket may be adjusted in 30 degree steps.

- **Frequency range covers 1260 ~ 1300MHz**
- **1 watt output**
- **Easy repeater operation**

●TONE switch
Activates the optional TU-6 CTCSS sub-audible-tone encoder.

●SHIFT switch
– 20MHz or simplex operation.

●Repeater reverse switch
Allows the operator to quickly check the input frequency of repeater so that he may determine if simplex communications would be possible.

●Odd split on memory channel 5.

- **Micoprocessor control of various frequency functions**

(1) 5 memory channels
Memory channel 1 is the priority alert channel.

(2) Scanning functions
•Program scan
The upper and lower scan limit frequencies are stored in memory channel 5.
•Memory scan
Memories in which no data is stored are automatically skipped during memory scan.
•Both program scan and memory scan continue after a preset time period (Time Operated Resume)
•Priority alert
Memory channel 1 will be scanned approximately once every 7 seconds to check for activity.

(3) Memory shift function
Operation will be returned to VFO tuning when the VFO knob is rotated during MR(Memory Recall) operation, beginning at the frequency of the current memory channel.

(4) Memory erase function
Allows the operator to easily clear unwanted memory channels.

(5) Memory check function
Display memory channel numbers sequentially in the display.

(6) Dual digital VFOs
VFO A(20kHz steps) and VFO B(10kHz steps), dual digital VFO's are provided for increased operator flexibility.

(7) Dual-function keyboard and audio "Beeper"
The operation of various functions is confirmed by the use of several distinct audio tones.

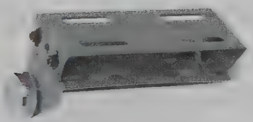
- **Multi-function LCD display with "S-meter"**

An easy to read, green multi-function LCD display indicates frequency, memory channel, VFO A/B, repeater offset, and S/RF level or battery indicator.

- **RIT (Receiver Incremental Tuning)**
- **MHz switch**
- **Ni-Cd battery and charger supplied**
- **16-key auto-patch UP/DOWN microphone supplied (U.S.A. only)**

Optional Accessories

MB-3: *Mobile Mount*

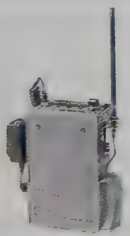


MC-43S: *UP/DOWN Microphone*

MC-55 *(8 pin): Mobile Microphone with time-out-timer*

MC-60A/80/85: *Base Station Microphones*

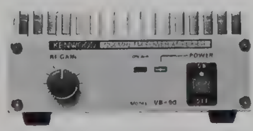
SC-10: *Soft Case*



SWC-4: *1200MHz Coupler for SW-200A/B, 2000 SWR/Power Meter*

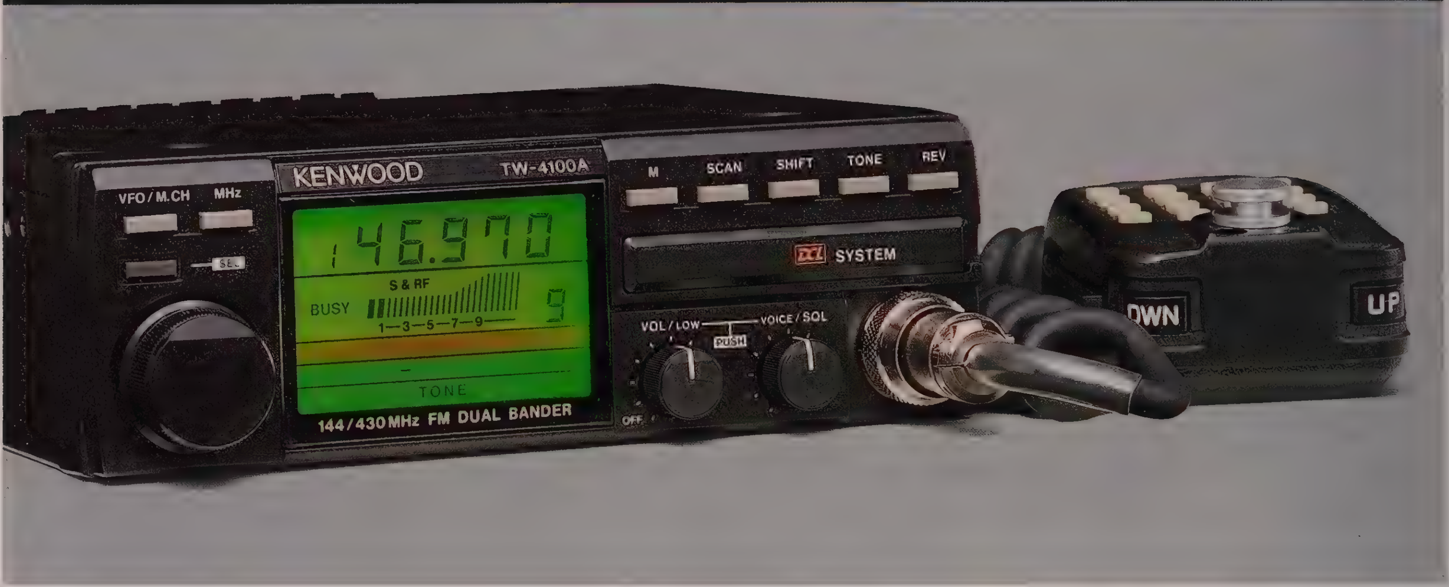
TU-6: *CTCSS Sub-audible Tone Encoder*

VB-50: *1200MHz RF Power Amplifier (10W)*



TW-4100A

FM DUAL BANDER



The new "Dual Bander" TW-4100A is designed to provide an all-powerful signal in VHF and UHF operations, allowing for ease and flexibility of operation on the 2-m and 70-cm FM functions in a single compact package.

- **45W (VHF), 35W (UHF) RF output, with HI/LO power switch**

The TW-4100A provides a powerful 45 watts (2-m) and 35 watts (70-cm) RF output, from a surprisingly ultra-compact design.

- **High performance receive/transmit design**

The use of a GaAs FET RF amplifier (2-stage for UHF front end), plus an improved antenna switching circuit provides high sensitivity with wide dynamic range throughout the entire frequency range. Superior sensitivity and selectivity assures reliable communications under the most severe conditions.

- **Ultra-compact and light-weight**

Designed to be the ultimate in compact size and light-weight, while retaining the maximum in operating features and convenience.

- **Extended frequency coverage**

2-m covers 142—149MHz, allowing simplex and repeater operation on many MARS and CAP frequencies.

*Specifications are guaranteed for Amateur Band only.

- **Easy-to-operate front panel**

Simple-to-use control panel features greater convenience and ease of operation via eight keys and a main knob.

- **Built-in digital VFO**

The digital VFO includes frequency step, allowing operational convenience.

•Selection of the frequency step

Frequency steps of 5kHz or larger for each band may be programmed using the "SEL" key and main knob for efficient and quick QSY.

•Selection of repeater offset and direction

The repeater offset frequencies of ±600kHz (2-m), ±1.6MHz, ±5MHz or ±7.6MHz (70-cm) for each band may be programmed.

- **Selectable full duplex cross band ("Telephone style") operation**

Cross band full duplex operation possible with control operator present.

- **10 memories with lithium battery back-up**

Ten memories store frequency, repeater offset, tone information and shift direction, for increased convenience and simplicity of operation.

- **Memory shift function**

When a frequency is recalled from memory, rotating the VFO knob automatically restores VFO control beginning at the recalled frequency.

- **Memory scan and band scan**

(a) Memory scan plus programmable memory channel lock-out

10 memory channels may be scanned.

(b) Band scan

Scans within the selected 2-m or 70-cm band using the selected frequency step.

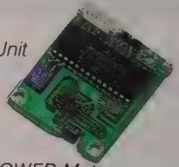
- **MHz function**

A 1MHz step UP/DOWN frequency change in VHF/UHF frequencies is easily accomplished through use of the main knob, for maximum convenience of quick QSY.

- **Highly visible large LCD display**
- **"BEEPER" amplified through audio circuit**
- **Repeater reverse switch**
- **Lithium battery memory back-up**

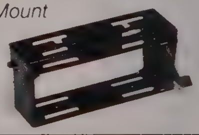
Optional Accessories

PS-50/430: *DC Power Supply*
CD-10: *Call sign Display*
MU-1: *DCL MODEM Unit*
TU-7: *CTCSS Tone Units*
VS-2: *Voice Synthesizer Unit*



SW-100B/200B: *SWR/POWER Meter*
SWT-1/SWT-2: *2-m/70-cm Antenna Tuning Unit*
SP-40: *Compact Mobile Speaker (4 Ω)*
SP-50B: *Mobile Speaker (8 Ω)*
PG-2N: *DC Cable*
PG-3B: *DC Line Noise Filter*
MC-60A (8 pin): *Deluxe Desk-top Microphone (50 k Ω/500 Ω)*
MC-80 (8 pin): *Desk-top Microphone (700 Ω)*
MC-85 (8 pin): *Multi-function Desk-top Microphone (700 Ω)*
MC-43S: *UP/DOWN Microphone*
MC-48B: *16-key Auto patch UP/DOWN Microphone.*
MC-55 (8 pin): *Mobile-Microphone with time-out-timer (700 Ω)*
MA-4000: *Dual Band Mobile Antenna with Duplexer (50 Ω)*

MB-11: *Extra Mobile Mount*

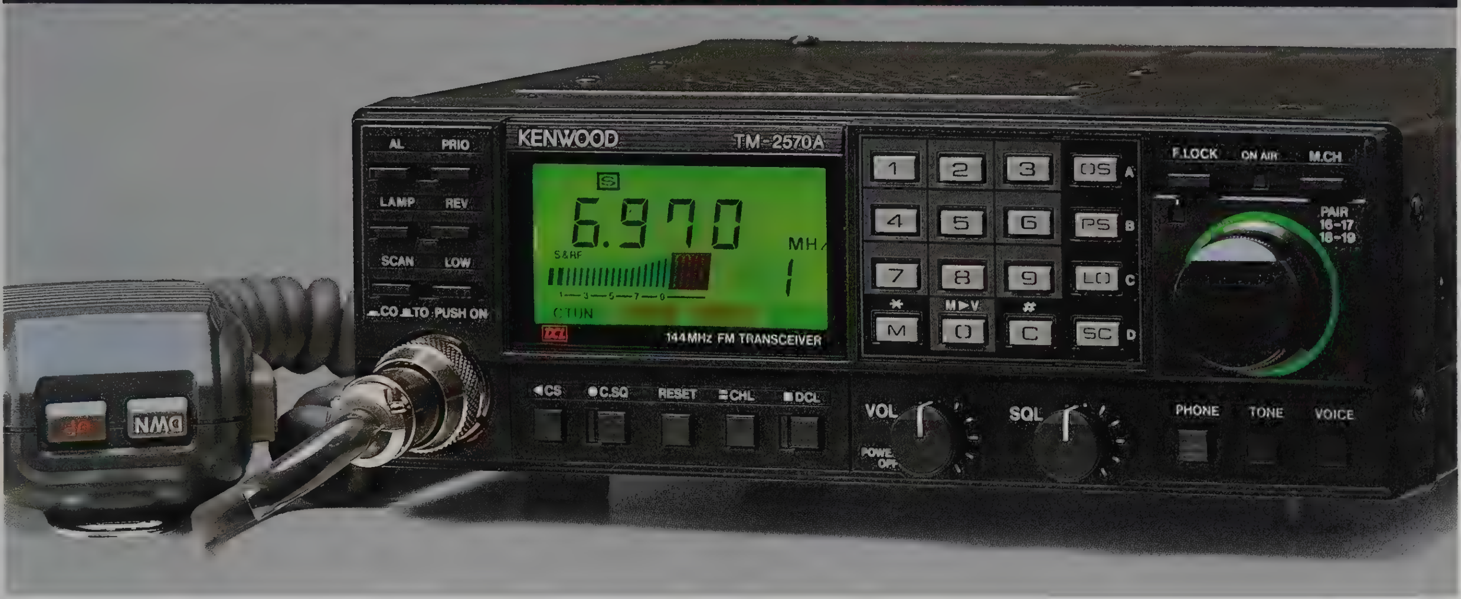


- **Optional VS-2 "Voice Synthesizer unit"**
- **Optional MU-1 DCL "Digital Channel Link" unit**
- **Adjustabe low power output**

TM-2570A/50A/30A, 3530A

144MHz 220MHz

FM MOBILE TRANSCEIVER



The KENWOOD TM-2570A/TM-2550A/TM-2530A 2 meter and TM-3530A 220MHz FM mobile transceivers have been designed to satisfy the needs of the most demanding 2 meter and 220MHz mobile operator.

- **70W, 45W, and 25W RF output versions**

A high reliability RF power amplifier stage makes possible three model versions, each having a different maximum power output: TM-2570A at 70W, TM-2550A at 45W and TM-2530A TM-3530A at 25W, adjustable low power position.

- **New large, easy-to-read LCD display**

A green, multi-function, back-lighted semi-penetration type LCD display is provided, for best visibility in direct sunlight or in darkness.

- **Optional MU-1 DCL "Digital Channel Link System" unit**

DCL is a revolutionary signalling system developed by KENWOOD for Amateur radio, that utilizes the most advanced digital data transmission technology.

- **23 Multi-function memory channesl**

23 memory channels allow storage of frequency, repeater offset, telephone numbers, and sub-tone frequencies (TU-7 sub-tone unit optional), providing quick and easy operation during mobile use.

- **15 "Telephone Number" memory channels**

Channel 1 through 15 may be used to store up to 15. seven-digit telephone numbers, entered using the front panel keyboard. Depressing the telephone key during transmission causes the selected telephone number to be automatically transmitted.

- **Center stop during programmable band scan**

During band scan, scanning action will stop in the center of the selected channel.

- **Extended frequency coverage**

Covers 142-149MHz in 5kHz steps, allowing simplex and repeater operation on many MARS and CAP frequencies (141—151MHz modifiable)

*Specifications are guaranteed for the 144—148MHz Amateur

- **New easy-to-operate, illuminated keys**

A functionally designed control panel features expanded convenience and ease of operation during night-time use, through backlighted, individually illuminated keys.

- **Pre-programmed automatic offset**

The built-in microprocessor is pre-programmed for automatic simplex or ±600kHz offset allowing easy operation on the selected frequencies. Manual selection is also possible.

- **Memory scan and programmable band scan, resume selection**

During memory scan or band scan, scanning may be programmed to stop automatically on a busy channel.

a) Memory scan plus programmable memory channel lock-out
b) Programmable band scan
c) Programmable priority alert

- **Programmable sub-tone channels**

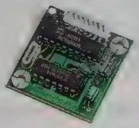
The internal installation of the optional TU-7 sub-tone unit provides 38 keyboard selectable sub-tone frequencies.

- **Built-in 16-key autopatch, with audible monitor circuit**
- **Lithium battery memory back-up**
- **Front-panel keyboard frequency selector**
- **Repeater reverse switch**
- **High performance receive/transmit specifications**
- **Audible "Beeper" confirms operation**
- **Microphone test function**
- **Optional VS-1 "Voice Synthesizer Unit"**
- **Frequency lock switch**

Optional Accessories

PS-50: *Heavy Duty DC Power Supply (for TM-2570A)*

PS-430: *DC Power Supply (for TM-2550A/2530A/3530A)*
CD-10: *DCL Call Sign Display (option AC-10: AC Adaptor)*
TU-7: *38 Tone CTCSS Encoder*
MU-1: *DCL MODEM Unit*

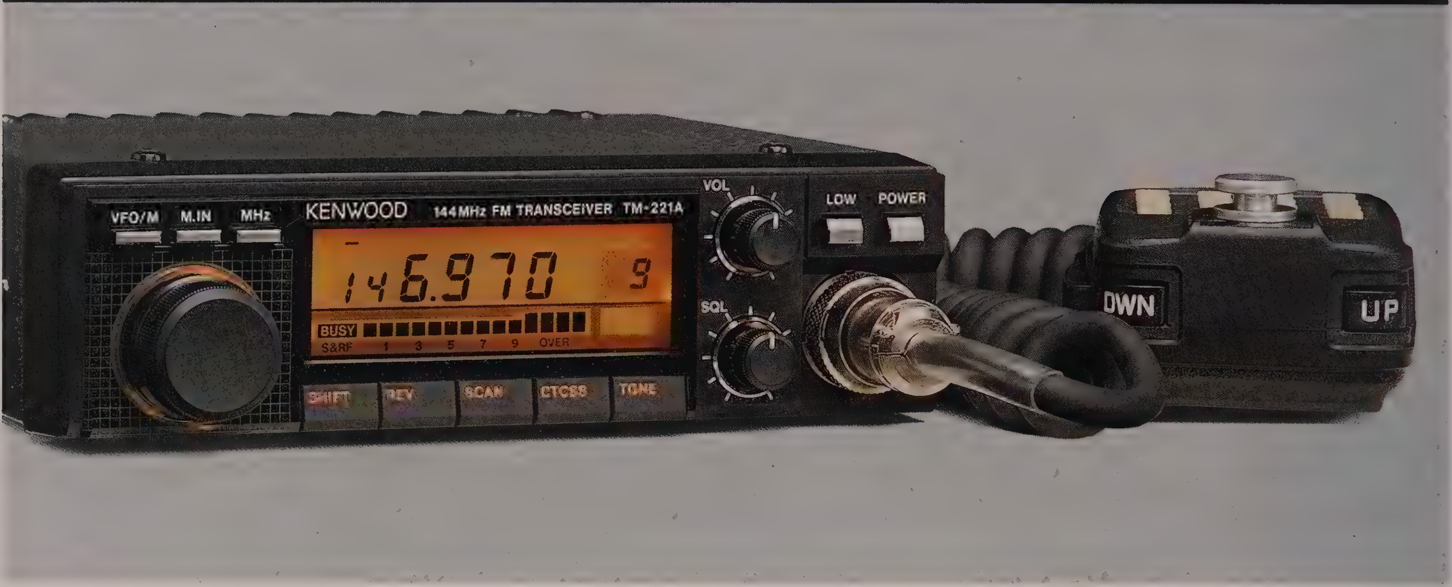


VS-1: *Voice Synthesizer Unit*
SW-100A/B: *SWR/POWER Meter*
SW-200A/B: *SWR/POWER Meter*
SWT-1: *2-m Antenna Tuner*
MC-60A/80/85: *Deluxe Desk-top Microphones*
MC-48B: *16-key Auto-patch Microphone*
MC-55 (8 pin): *Mobile Microphone*
SP-40: *Compact Mobile Speaker*
SP-50B: *Mobile Speaker*
PG-2N: *DC Cable*
PG-3B: *DC Line Noise Filter*
MB-10: *Mobile Mount*

- **Easy-to-install mobile mount included**
- **UP/DOWN microphone included**

TM-221A/321A/421A
144MHz 220MHz 440MHz

COMPACT FM MOBILE TRANSCEIVER



The new TM-221A 2-m, TM-321A 220MHz and TM-421A 440MHz high power FM mobile transceivers have been specifically designed to condense maximum performance and operating convenience into an ultra compact package, allowing maximum flexibility in automotive installations.

- **45W (TM-221A), 25W (TH-321A), 35W (TM-421A) RF output, with HI/LO power switch**

The TM-221A provides a powerful 45 watts, TH-321A 25 watts and TM-421A 35 watts RF output, from a surprisingly ultra-compact design.

- **High performance receive/transmit design**

The use a GaAs FET RF amplifier, plus an improved antenna switching circuit, provides high sensitivity with wide dynamic range throughout the entire frequency range.

- **Ultra-compact and lightweight**

Measures only 140 (5.51)W × 40 (1.57)H × 179 (7.05)Dmm (inch) and weighs only 1.2kg (2.65 lbs.), an ideal size for installation in today's compact automobiles.

- **Extended frequency coverage**

The TM-221A receives from 138.000MHz to 173.995MHz in selectable steps. This includes the Weather Channels. The transmiter covers the 144-148MHz Amateur Band only. The TM-321A covers from 220,000 to 224.995MHz including new Novice band, and the TM-421A offers extended frequency coverage (438.000 ~ 449.995MHz) on both transmit and receive.

*Specifications are guaranteed for 144—148MHz Amateur Band only.

- **Optional multi-function handset remote controller (RC-10)**

A very convenient optional RC-10 is capable of controlling all of the front panel functions except HI/LO power switch and DC power (ON/OFF). When it is connected to two different transceivers with the optional PG-4G cable, it enable for cross band full duplex operation and automatic repeater operation.

- **Built-in digital VFO**

The digital VFO includes frequency step, tone frequency and repeater information, allowing operational convenience.

(a) Selection of the frequency step
(b) Selectable CTCSS tone built-in

- **Pre-programmed automatic offset (TM-221A/321A)**

The built-in micro-processor is pre-programmed for automatic simplex or ±600kHz (TM-221A), −1.6MHz (TM-321A) offset, allowing easy operation on the selected frequencies.

- **14 multi-function memory channels including 2 odd split channels**

Allow storage of frequency, repeater offset, sub-tone frequency, CTCSS tone decoder and reverse information, providing quick and easy access during mobile operation.

- **Memory scan and programmable band scan**

(a) Memory scan plus programmable memory channel lock-out
(b) Programmable band scan

- **High visibility amber LCD display**

A new amber, multi-function, back-lighted semi-penetration type LCD display is provided, for best visibility in direct sunlight or after dark.

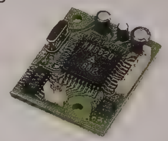
- **16-key autopatch UP/DOWN microphone supplied**

Provides 16 DTMF autopatch tones. UP/DOWN switches permit stepped frequency change, or initiates scan in the corresponding direction, if held depressed.

Optional Accessories

RC-10: *Multi-Function Handset Remote Controller*

PG-4G: *Extra Cable for RC-10 for second transceiver*
PS-50/PS-430: *DC Power Supply*
TSU-5: *Programmable Tone Decoder*



SW-100A/B, 200A/B: *SWR/POWER Meter*
SWT-1/SWT-2: *2-m/70-cm Antenna Tuning Unit*
SP-40 (4Ω)/SP-50B (8Ω): *Mobile Speaker*
PG-2N: *DC Cable*
PG-3B: *DC Line Noise Filter*
MC-60A/80/85: *Desk-Top Microphone*
MC-55 (8 pin): *Mobile Microphone with Time-out-Timer*
MA-4000: *Dual Band Mobile Antenna with Duplexer (2-m/70-cm)*
MB-201: *Extra Mobile Mount.*

- **Memory shift function**

The memory frequency may be recalled by simply pressing the appropriate "VFO/M" key.

- **Microphone test function**
- **"BEEPER amplified throught audio circuit**
- **Repeater offset switch and reverse switch**

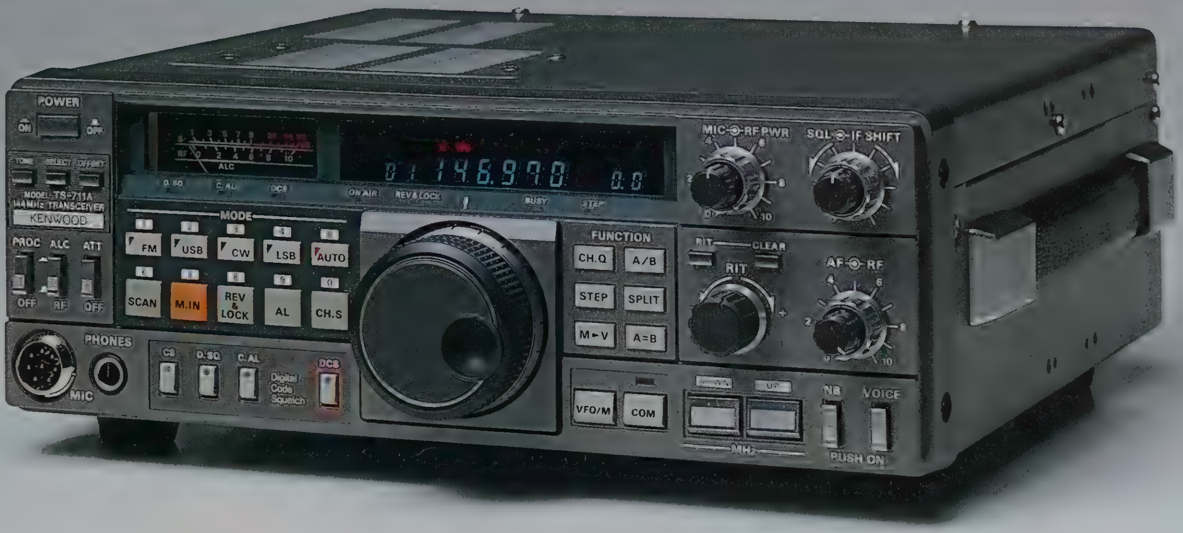
±600kHz (TM-221A), ±1.6MHz (TM-321A), ±5MHz (TM-421A), or simplex can be selected by the front panel "SHIFT" switch.

- **Rugged die-cast chassis and large heatsink**
- **High-quality, top-mounted speaker**

TS-711A/811A

144MHz 430MHz

ALL-MODE TRANSCEIVER



The TS-711A 2-m and TS-811A 70-cm all-mode transceivers feature enhanced ease of operation through the use of new microprocessor technology that permits the incorporation of the widest range of innovative features in a very compact package.

- **Frequency range**
TS-711A: 144—148MHz
TS-811A: 430—450MHz

- **DCS (Digital Code Squelch)**
A revolutionary signalling concept developed by KENWOOD, for Amateur radio, utilizes the most advanced digital data transmission technology.

- **10Hz step dual digital VFOs with TCXO**
Provides commercial grade frequency stability through use of a TCXO functioning in a dual loop PLL circuit.

- **All-mode plus auto-mode operations**
Modes of operation include FM, USB, LSB, and CW. The first letter of the mode is announced in the Morse code.
An "AUTO" switch, when activated, cues the radio to automatically select the appropriate mode, depending on the frequency selected.

- **Channel "QUICK-STEP" tuning**
Tuning characteristic varies from conventional VFO feel to stepping action.

- **New Microprocessor controller operation**
  - **40 multi-function memory channels.**
  Allows storage of frequency, mode, dial information, offset, and tone.
  - **Programmable band scan.**
  Scans automatically within the limits specified in memory channel 39 and 40.
  - **Memory scan plus programmable memory channel lock-out.**
  Memory scan scans only those channels in which data is stored. Lock-out function permits the operator to skip selected channels.
  - **Memory channel mode scan**
  Depressing the "SCAN" switch when the "AUTO" mode has been selected initiates all-mode scan.
  - **Alert**
  Memory channel 1 "alert channel" is monitored for activity approximately every 6 seconds.

- **Operational type RIT circuit**
Shifts the receive frequency in 10Hz steps within a range of ±9.9kHz, without affecting the transmit frequency.

- **RF output power control**
Continuously variable from 2 watts to maximum power in any mode.

- **IF shift**
Allows the operator to move the IF pass-band in either direction around the received signal, to place interfering signals outside the pass-band.

- **Speech processor built-in**
Combines an audio compression amplifier with a change in ALC time constant, resulting in an increase in average "talk power"

- **Voice synthesizer unit (optional)**
Announces the frequency, digital code or tone frequency.

- **All-mode squelch circuit**
Effective in suppressing background noise in all operating modes.

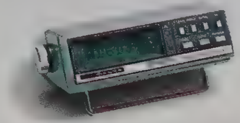
- **High performance noise blanker**
Effective in suppressing pulse-noise (ignition noise).

- **Reverse and lock switch**

- **Built-in AC power supply**

Optional Accessories

CD-10: *Call Sign Display*



SP-430: *External Speaker*

VS-1: *Voice Synthesizer Unit*

TU-5: *CTCSS Tone Unit*

MB-430: *Mobile Mount*

PG-2U: *DC Power Cable*

SW-200A/B: *SWR/POWER Meter*

MC-60A/80/85: *Deluxe Desk-Top Microphone*

MC-48B: *16-key Auto-patch UP/DOWN Microphone*

MC-43S: *UP/DOWN Microphone*

SWT-1/2: *2m/70cm Compact Antenna Tuner*

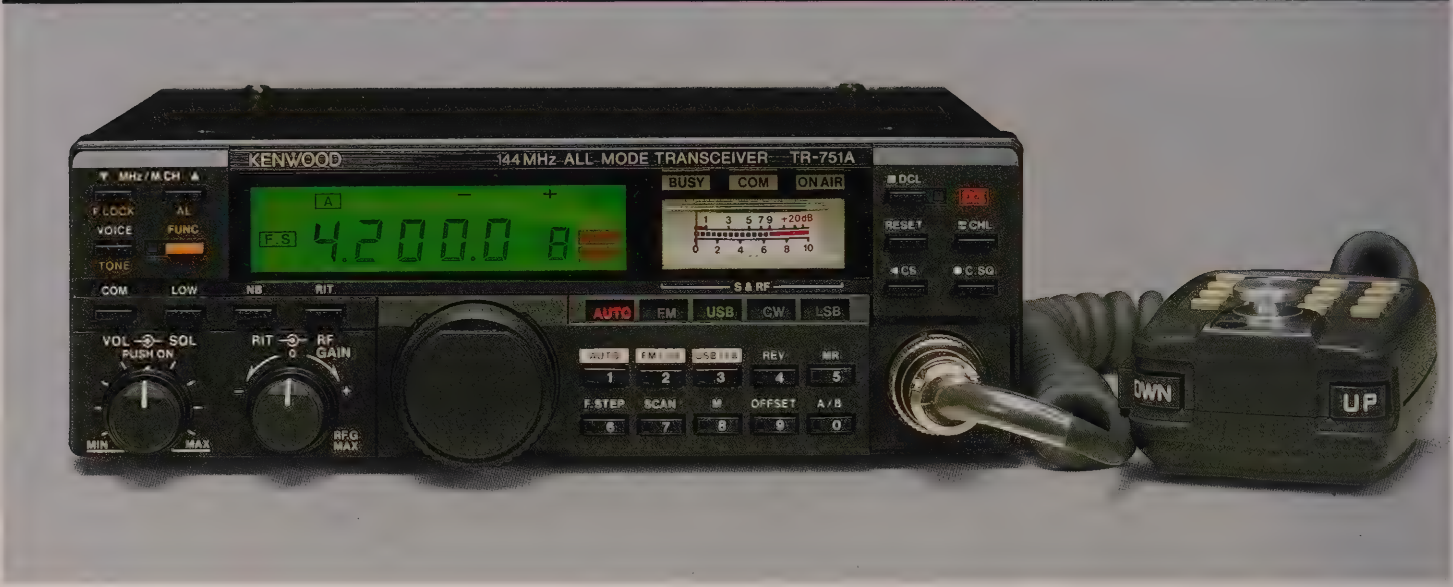
- **Multi-function fluorescent tube display**

- **AC power supply built-in, optional DC power cable**
- **Common channel**
- **RF attenuator (TS-711A only)**
- **AGC switch (TS-811A only)**
- **CW semi break-in circuit, with side-tone**

TR-751A/851A

144MHz 430MHz

ALL-MODE TRANSCEIVER



The TR-751A 2-m and TR-851A 70-cm all-mode transceivers deliver superior performance and "All Mode Mobility."

- **25W RF output, with HI/LO power siwtch**

Provides a powerful 25 watts of RF output on SSB/CW/FM modes, for mobile or base station.

- **Compact and lightweight**
- **High performance receive/transmit specifications**

The use of a GaAs FET RF amplifier, plus an improved antenna switching circuit, provides high sensitivity with wide dynamic range. Transmitter and receiver modulation characteristics selected for best sound quality and minimum distortion.

- **Easy-to-operate functions**
- **All-mode operation**

Modes include FM, USB, LSB and CW transmit and/or receive. International Morse code confirms the selected mode.

- **Auto-mode operation**

Mode selection is automatically selected in appropriate mode, depending on frequency selected.

144 144.1 144.5 145.8 146 148MHz

CW	USB	FM	USB	FM

TR-751A

430 435 438 440MHz

FM	LSB	FM

TR-851A

- **Optional MU-1 DCL "Digital Channel Link System" Unit**

DCL is a revolutionary signalling system developed by KENWOOD for Amateur radio that utilizes the most advanced digital data transmission technology.

- **Extended frequency coverage** (TR-751A)

Covers 142—149MHz. Also expandable for coverage 141—151MHz.

(Specifications are guaranteed for the 144—148MHz Amateurband only)

- **Easy-to-read S & RF analog meter**
- **Various frequency control function**
- **Dual digital VFOs built-in**

Dual digital VFOs tune independently, including mode selection, frequency step and repeater information.

MODEL	TR-751A		TR-851A	
MODEL / STEP	SSB/CW	FM	SSB/CW	FM
ON	50Hz	10kHz	50Hz	5kHz
OFF	5kHz	5kHz	5kHz	25kHz

- **10 memories plus "COM" channel, with lithlum battery back-up**

Ten memories store frequency, mode, repeater offset and tone information.

- **Various scan functions**
- **Programmable band scan**
- **Memory scan**
- **Memory channel mode scan**
- **Alert**
- **Repeater offset**

Selects ±600kHz (TR-751A), ±5MHz (TR-851A) or simplex.

- **Repeater reverse switch**

Transposes the receive and transmit frequencies for checking signals on the input of a repeater

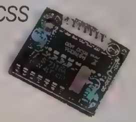
- **Programmable sub-tone channels**

The internal installation of the optional TU-7 sub-tone unit provides 38 keyboard selectable sub-tone frequencies.

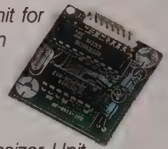
- **16-key autopatch UP/DOWN microphone supplied** (TR-751A) (U.S.A version only. Normal UP/DOWN microphone is supplied for the TR-851A and other markets.)

Optional Accessories

CD-10: *Call Sign Display*
PS-430: *DC Power Supply*
SW-100A/B, 200A/B: *SWR/POWER Meters*
SWT-1/2: *2-m/70-cm Antenna Tuning Unit*
TU-7: *38 Tone CTCSS Encoder*



MU-1: *MODEM Unit for DCL system*



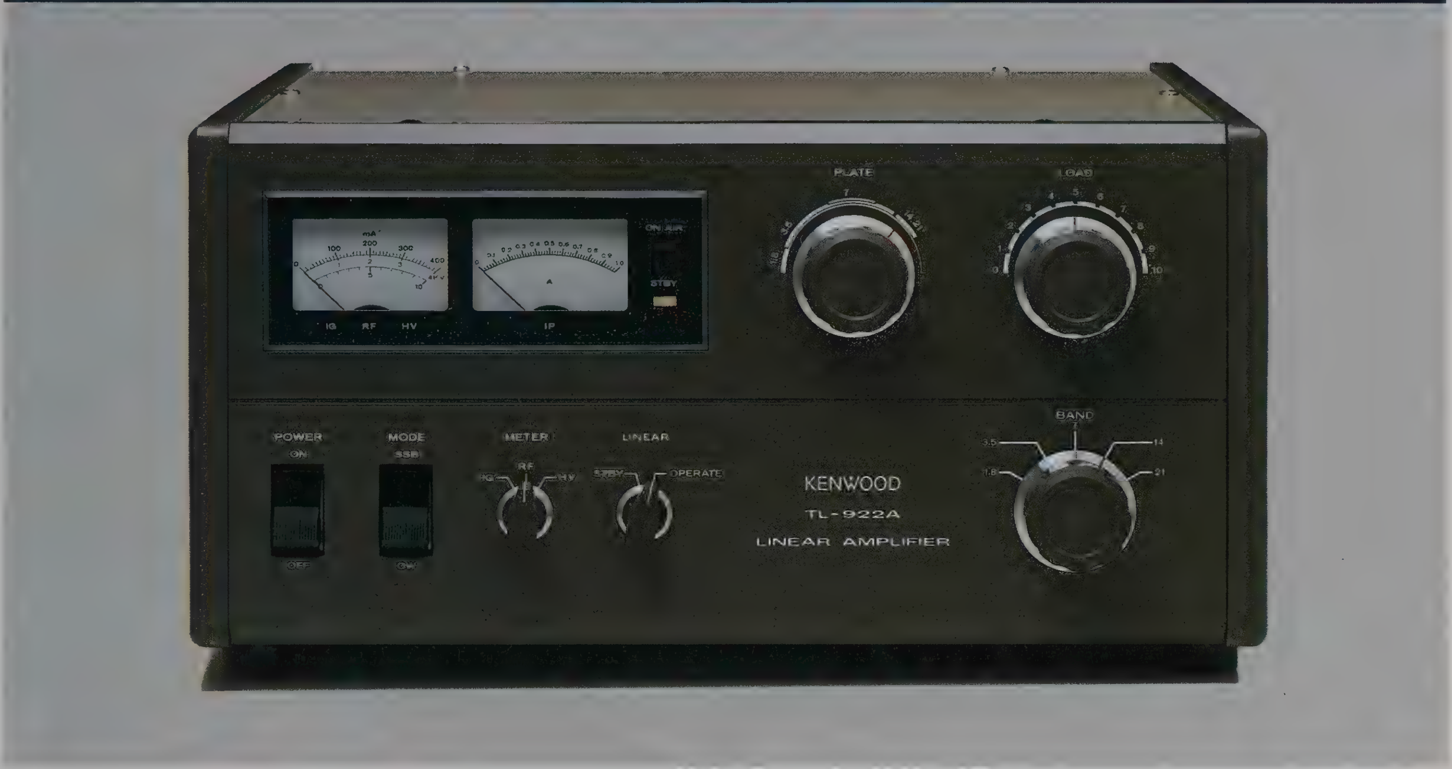
VS-1: *Voice Synthesizer Unit*
MB-10: *Mobile Mount*
SP-40/50B: *Compact Mobile Speakers*
MC-60A/80/85: *Deluxe Desk-Top Microphones*
MC-48B (TR-751A): *16 Key Autopatch UP/DOWN Microphone*
MC-55 (8-pin): *Mobile Microphone Time-out-Timer*
PG-2N: *DC Cable*
PG-3B: *DC Line Noise Filter*

- **Superb SSB and CW function**
- **All-mode squelch circuit**
- **Noise blanker**
- **Semi break-in and side tone**
- **Built-in RIT**

- **Large, easy-to-read LCD display**
- **Memory shift function**
- **AUX terminal on rear panel for linear amplifier control**
- **Optional VS-1 "Voice Synthesizer Unit"**
- **"BEEPER" amplified through audio circuit**
- **Frequency lock switch**
- **Low power output level adjustment**
- **Easy-to-install mobile mount**

TL-922A

HF LINEAR AMPLIFIER

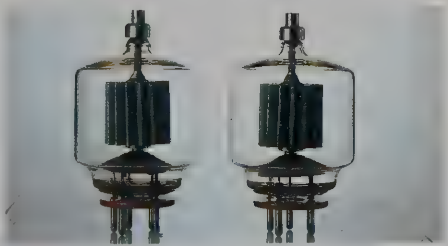


The TL-922A is an HF linear amplifiers designed to provide maximum legal power, utilizing two 3-500Z high performance transmitting tubes. The TL-922A is designed for the U.S.A. market and does not cover the 10 meter band, in conformance with FCC regulations.

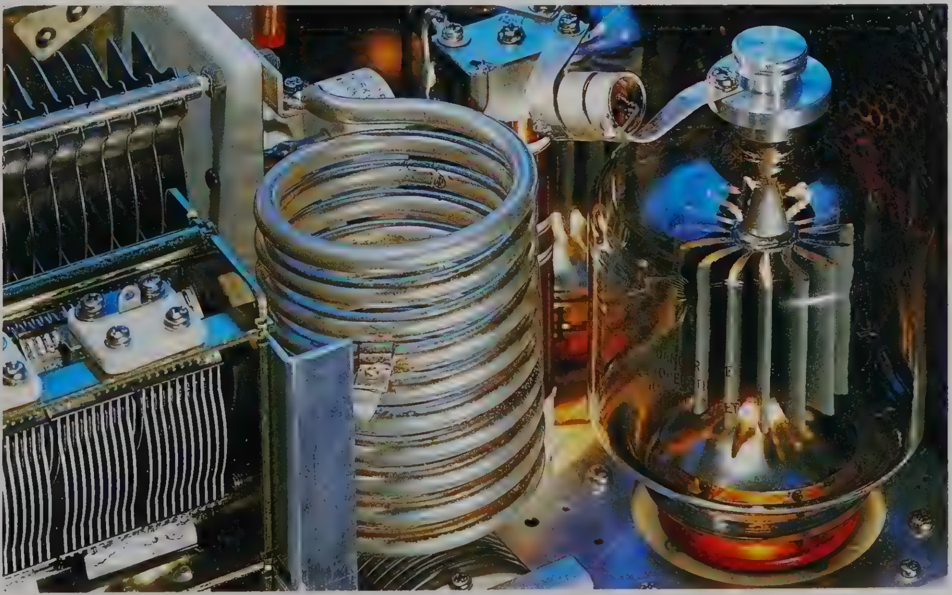
Specifications

•Frequency Range: 160, 80, 40, 20, 15, meters band •Mode: SSB, CW, RTTY •Drive Power: 80W or more for full output •RF Input Power: SSB = 2000WPEP, CW, RTTY = 1000WDC •Circuitry. AB_2 class grounded-grid linear amplifier •Input/Output Impedance: 50Ω/50～75Ω •Fan Motor Delay Stop Time: 140 ±30 seconds. •ALC: Negative going adjustable threshold −8VDC max. Output (typical) •Power Requirement: 120/220V 28A 50/60Hz type. 220/240V 14A 50/60Hz type. •Dimensions: 390(15.4) × 190(7.5)H × 407(16.0)Dmm (inch) •Weight: 31kg (68.3 lbs.)

- Utilizes a pair of high performance EIMAC 3-500Z transmitting tubes.

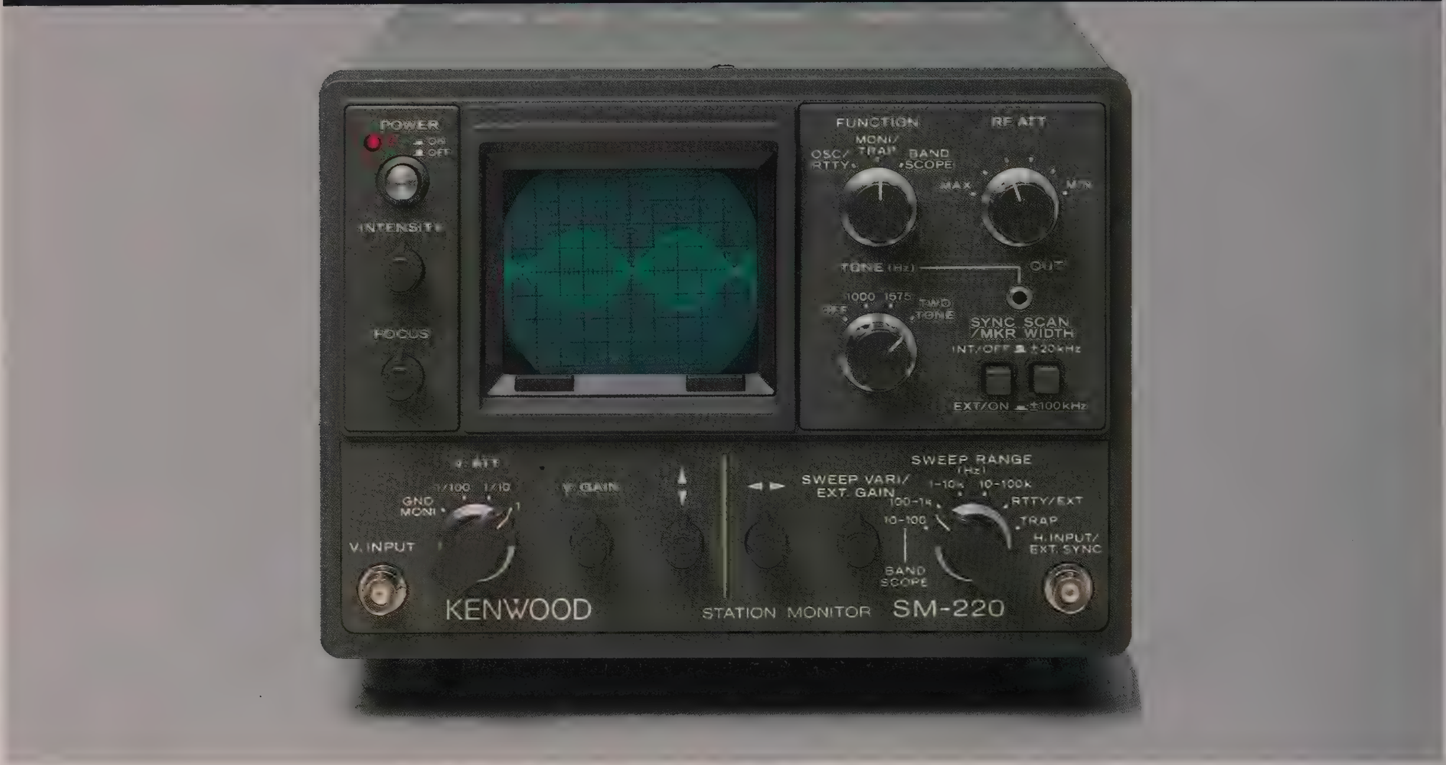


- Incorporates class AB_2 grounded-grid amplifier circuit.
- Excellent IMD (intermodulation distortion) characteristics.
- Safety protection provision.
- Cooling fan power "OFF" delay circuit.
- Variable threshold level type ALC circuit.
- Two meters for maximum operating convenience.
- Styling and finish matches KENWOOD transceivers.
- 2kW PEP input
- Covers 160m～15m (Not for QSK operation)



SM-220

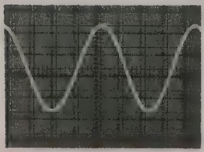
STATION MONITOR

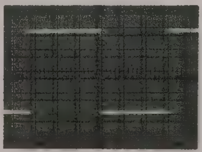

POWER
ON
OFF
INTENSITY
FOCUS
FUNCTION
OSC/RTTY
MONI/TRAP
BAND SCOPE
RF ATT
MAX
MIN
TONE (Hz)
OFF
1000
1575
TWO TONE
OUT
SYNC /MKR
SCAN WIDTH
INT/OFF
±20kHz
EXT/ON
±100kHz
V. ATT
GND MONI
1/100
1/10
1
V. GAIN
SWEEP VARI/ EXT. GAIN
SWEEP RANGE (Hz)
10–100
100–1k
1–10k
10–100k
RTTY/EXT
TRAP
H. INPUT/ EXT. SYNC
BAND SCOPE
V. INPUT
KENWOOD
STATION MONITOR SM-220

The SM-220 station monitor features a built-in two-tone generator for a wide variety of waveform-observing capabilities.

An optional feature is a unique panoramic display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency-range oscilloscope for various adjustments and experiments.

- **A 2Hz to 10MHz wide bandwidth, high-performance oscilloscope**
  The vertical amplifier has a high sensitivity of 20mV/division, with a broad frequency range of from 2Hz to 10MHz

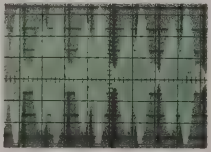

Sine wave

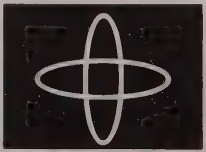

Square wave

- **Capable of monitoring various incoming signal waveforms**
  Making full use of the scope's wideband performance, it can monitor the IF output waveforms of incoming signals being received by some transceivers.

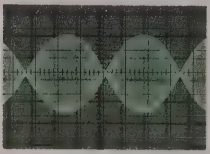
- **Pan display capability with optional BS-8**
  Enables the operator to look at on-the-air conditions within the band width of ±20kHz or ±100kHz.

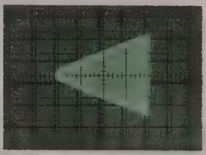
- **Ensures quality signal transmission**
  A glance at the CRT screen allows quick and accurate SSB microphone gain setting, key-click elimination, and other adjustments for maintaining quality signal transmission with minimum distortion.


Speech pattern


RTTY cross pattern

- **Built-in 1000Hz and 1575Hz two-tone generator**
  Used to check SSB transmit performance


Two-tone oscillator waveform


Trapezoid waveform

Specifications

(Transmit Signal Monitor Terminal) ●Frequency range: 1.8—150MHz ●Maximum power: 1kW (1.8—54MHz), 50W (150MHz) ●SWR: 1.2:1 or less ●Deflection sensitivity: Better than 1 div. at 2W input ●Attenuator: 6 steps **(Trapezoid waveform observation)** ●Frequency range: 1.8—30MHz ●Maximum power at DRIVE TERMINAL: 2—100W ●SWR: 1.2:1 or less **(Two-tone generator)** ●Oscillator frequency: 1,000Hz and 1,575Hz ●Output voltage: 10mV/50kΩ (at TWO TONE) **(Pan display unit)** ●Input center frequency: 8.830MHz (BS-8) ●IF frequency: 455kHz ●IF bandwidth: More than 1kHz (–6dB) ●Input sensitivity: Better than 10μV/div. ●Scan width: ±20kHz, ±100kHz, switchable gain **(Horizontal amplifier)** ●Deflection sensitivity: More than 300mV/div. ●Frequency response: DC—250kHz or over (EXT GAIN at MAX); DC—40kHz (EXT GAIN at 1/2) ●Input resistance/capacitance: 1 MΩ (±20%)/35 PF or less (SYNC switch at INT) ●Attenuator: Fully variable to 0 ●Max. input voltage: 100Vp-p **(Sweep circuit)** ●Sweep frequency: 10Hz—100kHz (4 ranges, with fine adjustment) ●Sweep linearity: Better than 5% ●Sync amplitude: Internal; Better than 1 div. on CRT external; Better than 2Vp-p **(Vertical amplifier)** ●Deflection sensitivity: Better than 20mV/div. ●Frequency response: 2Hz—10MHz (–3dB) ●Input resistance/capacitance: 1MΩ/40 PF ●Overshoot: Less than 5% ●Attenuator: 1, 1/10, 1/100 and GND/MONITOR (Error between steps: 5% max.) ●Max. input voltage: 300V (DC+AC peak) or 600Vp-p ●Power supply: 120/220/240V AC ±10%, 50/60Hz 20W ●Dimensions: 215 (8.6)W×153(6.1)H×335(13.4)Dmm (inch) ●Weight: 5kg (11 lbs.)

Optional Accessory

- **BS-8:** *Pan Display Unit for TS-940S/TS-830S/TS-530SP (with simple modification)*

Specifications for optional microphones

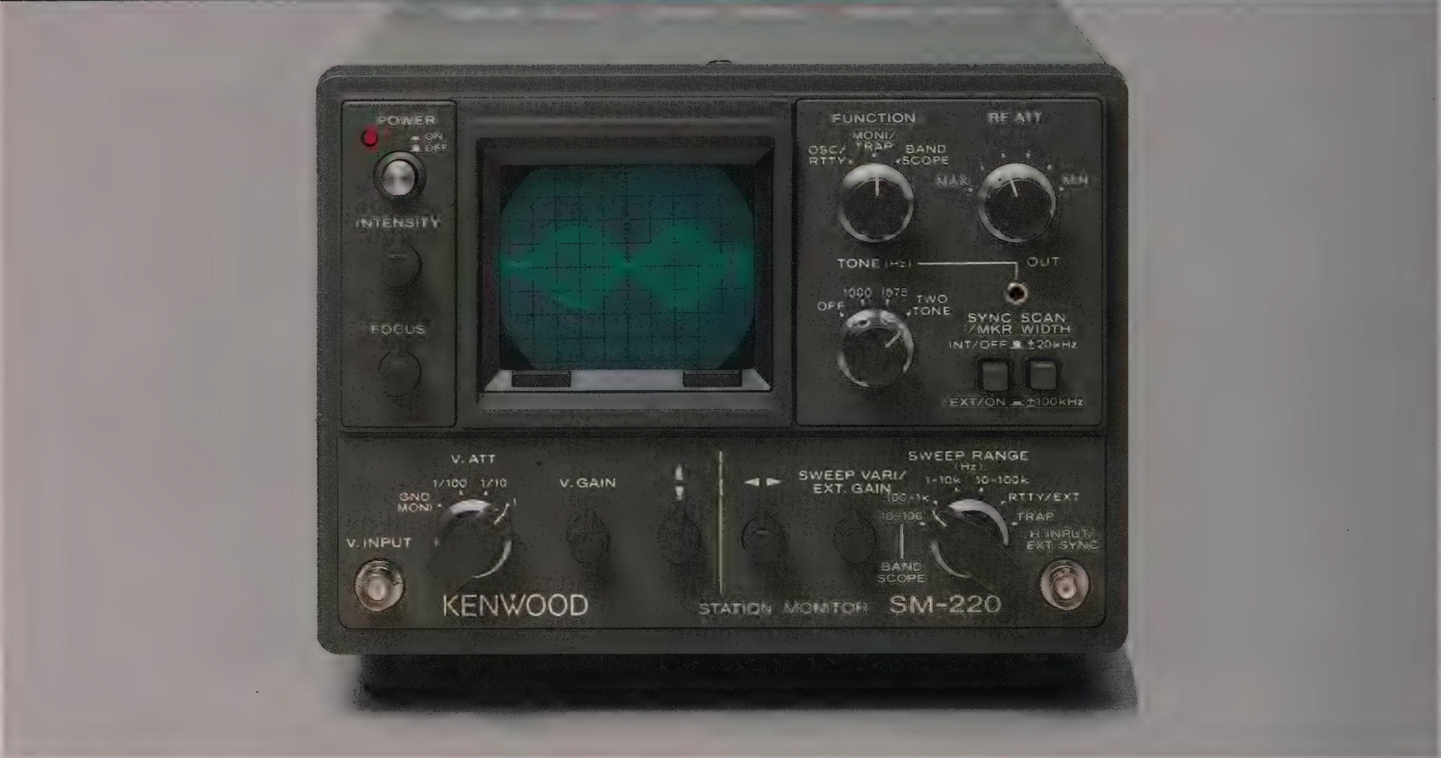
Model	Type (Microphone)	Connector	Output Impedance	Others	Transceiver
MC-30S/35S	Noise cancelling dynamic	4 pin	500 Ω (MC-30S) 50 kΩ (MC-35S)	Noise cancelling type	TS-130SE·SE·S·V/530S·SP/830S
MC-40S/42S/43S	Omnidirectional dynamic	6 pin (MC-40S) 8 pin (MC-43S)	500 Ω ±30%	Built-in UP/DOWN SW	MC-40S: TR-7730/7800/7850/9130/8400/9500/7950/7930 MC-42S/43S: TS-940S/930S/670/440S/430S/780/711A/811A, TR-50
MC-46/48B	Electret condenser	6 pin (MC-46) 8 pin (MC-48B)	500 Ω~2 kΩ (MC-46) 600 Ω (MC-48)	16 key auto-patch with UP/DOWN SW	MC-46: TR-7730/7800/7850/9130/8400/9500 MC-48B: TW-4000A/4100A, TM-201A·B/401A·B/211A/411A/221A/321A/421A/2570A/2550A/2530A/3530A, TR-751A/851A, TS-711A/811A
MC-50	Unidirectional dynamic	4 pin	Dual impedance 50 kΩ ±20% 600 Ω ±20%		TS-130SE·S·V/530S·SP/830S
MC-60A	Unidirectional dynamic	8 pin	Dual impedance 50 kΩ ±30% 500 Ω ±30%	UP/DOWN SW Built-in pre-amplifier	TS-940S/930S/440S/430S/670/780/711A/811A, TW-4000A/4100A, TM-201A·B/401A·B/211A/411A/221A/321A/421A/2570A/2550A/2530A/3530A
MC-80	Omnidirectional electret condenser	8 pin	700 Ω ±30% (at 1000 Hz)	UP/DOWN SW Built-in pre-amplifier	
MC-85	Unidirectional electret condenser	8 pin	700 Ω ±30% (at 1000 Hz)	UP/DOWN SW Built-in audio level compensation	
MC-55	Unidirectional electret condenser	6 pin version 8 pin version	700 Ω approx.	UP/DOWN SW	TR-7950/7930, TS-440S/430S, TW-4000A/4100A, TM-201A·B/401A·B/211A/411A/221A/321A/421A/2570A/2550A/2530A/3530A, TR-50, TR-751A/851A

Specifications for optional filters

Model	Center frequency	Bandwidth −6 dB	Bandwidth −60 dB	Guaranteed attenuation	Transceivers
YG-455C	455.7 kHz	500 Hz	820 Hz	More than 80 dB	TS-830S/R-2000
YG-455C-1	455.0 kHz	500 Hz	820 Hz	More than 80 dB	TS-930S/940S
YG-455CN	455.7 kHz	250 Hz	500 Hz	More than 80 dB	TS-830S
YG-455CN-1	455.0 kHz	250 Hz	480 Hz	More than 80 dB	TS-930S/940S
YK-88A	8831.5 kHz	6 kHz	11 kHz	More than 80 dB	TS-430S/670
YK-88A-1	8830.0 kHz	6 kHz	11 kHz	More than 80 dB	TS-930S/940S, R-5000
YK-88C	8830.7 kHz	500 Hz	1.8 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP/830S/670, R-5000
YK-88C-1	8830.0 kHz	500 Hz	1.5 kHz	More than 80 dB	TS-930S/940S
YK-88CN	8830.7 kHz	270 Hz	1.2 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP/830S/670, R-5000
YK-88S	8830.0 kHz	2.4 kHz	4.4 kHz	More than 80dB	TS-440S
YK-88SN	8830.0 kHz	1.8 kHz	3.6 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP, R-5000

SM-220

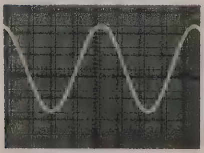
STATION MONITOR

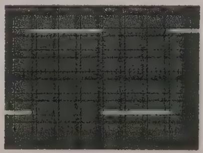

POWER
ON
OFF
INTENSITY
FOCUS
FUNCTION
OSC/RTTY
MONI/TRAP
BAND SCOPE
RF ATT
MAX
MIN
TONE (Hz)
OUT
OFF
1000
1575
TWO TONE
SYNC /MKR
SCAN WIDTH
INT/OFF
±20kHz
EXT/ON
±100kHz
V. ATT
1/100
1/10
GND MONI
V. GAIN
V. INPUT
SWEEP VARI/ EXT. GAIN
SWEEP RANGE (Hz)
1-10k
10-100k
100-1k
10-100
RTTY/EXT
TRAP
H. INPUT/ EXT. SYNC
BAND SCOPE
KENWOOD
STATION MONITOR SM-220

The SM-220 station monitor features a built-in two-tone generator for a wide variety of waveform-observing capabilities.
An optional feature is a unique panoramic display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency-range oscilloscope for various adjustments and experiments.

■ A 2Hz to 10MHz wide bandwidth, high-performance oscilloscope

The vertical amplifier has a high sensitivity of 20mV/division, with a broad frequency range of from 2Hz to 10MHz


Sine wave


Square wave

■ Capable of monitoring various incoming signal waveforms

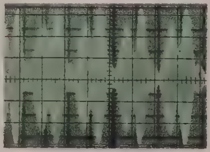
Making full use of the scope's wideband performance, it can monitor the IF output waveforms of incoming signals being received by some transceivers.

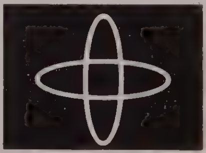
■ Pan display capability with optional BS-8

Enables the operator to look at on-the-air conditions within the band width of ±20kHz or ±100kHz.

■ Ensures quality signal transmission

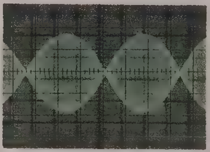
A glance at the CRT screen allows quick and accurate SSB microphone gain setting, key-click elimination, and other adjustments for maintaining quality signal transmission with minimum distortion.

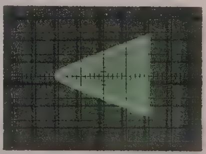

Speech pattern


RTTY cross pattern

■ Built-in 1000Hz and 1575Hz two-tone generator

Used to check SSB transmit performance


Two-tone oscillator waveform


Trapezoid waveform

Specifications

(Transmit Signal Monitor Terminal) ●Frequency range: 1.8—150MHz ●Maximum power: 1kW (1.8—54MHz), 50W (150MHz) ●SWR: 1.2:1 or less ●Deflection sensitivity: Better than 1 div. at 2W input ●Attenuator: 6 steps **(Trapezoid waveform observation)** ●Frequency range: 1.8—30MHz ●Maximum power at DRIVE TERMINAL: 2—100W ●SWR: 1.2:1 or less **(Two-tone generator)** ●Oscillator frequency: 1,000Hz and 1,575Hz ●Output voltage: 10mV/50kΩ (at TWO TONE) **(Pan display unit)** ●Input center frequency: 8.830MHz (BS-8) ●IF frequency: 455kHz ●IF bandwidth: More than 1kHz (–6dB) ●Input sensitivity: Better than 10μV/div. ●Scan width: ±20kHz, ±100kHz, switchable gain **(Horizontal amplifier)** ●Deflection sensitivity: More than 300mV/div. ●Frequency response: DC—250kHz or over (EXT GAIN at MAX); DC—40kHz (EXT GAIN at 1/2) ●Input resistance/capacitance: 1 MΩ (±20%)/35 PF or less (SYNC switch at INT) ●Attenuator: Fully variable to 0 ●Max. input voltage: 100Vp-p **(Sweep circuit)** ●Sweep frequency: 10Hz—100kHz (4 ranges, with fine adjustment) ●Sweep linearity: Better than 5% ●Sync amplitude: Internal; Better than 1 div. on CRT external; Better than 2Vp-p **(Vertical amplifier)** ●Deflection sensitivity: Better than 20mV/div. ●Frequency response: 2Hz—10MHz (–3dB) ●Input resistance/capacitance: 1MΩ/40 PF ●Overshoot: Less than 5% ●Attenuator: 1, 1/10, 1/100 and GND/MONITOR (Error between steps: 5% max.) ●Max. input voltage: 300V (DC+AC peak) or 600Vp-p ●Power supply: 120/220/240V AC ±10%, 50/60Hz 20W ●Dimensions: 215 (8.6)W × 153(6.1)H × 335(13.4)Dmm (inch) ●Weight: 5kg (11 lbs.)

Optional Accessory

- **BS-8:** *Pan Display Unit for TS-940S/TS-830S/ TS-530SP (with sjmple modification)*

nitor Terminal)
3—150MHz ●Maximum power
W (150MHz) ●SWR: 1.2:1 or less
Better than 1 div. at 2W input
Trapezoid waveform observation)
3—30MHz ●Maximum power at
–100W ●SWR: 1.2:1 or less **(Two-**
cillator frequency: 1,000Hz and
ge: 10mV/50kΩ (at TWO TONE)
nput center frequency: 8.830MHz
455kHz ●IF bandwidth: More
nput sensitivity: Better than
: ±20kHz, ±100kHz, switchable
lifier) ●Deflection sensitivity:
●Frequency response:
EXT GAIN at MAX); DC—40kHz
out resistance/capacitance: 1 MΩ
(SYNC switch at INT) ●Attenuator:
ax. input voltage: 100Vp-p
ep frequency: 10Hz—100kHz
justment) ●Sweep linearity: Better
tude: Internal; Better than 1 div.
r than 2Vp-p
Deflection sensitivity: Better
ency response: 2Hz—10MHz
nce/capacitance: 1MΩ/40 PF
5% ●Attenuator: 1, 1/10, 1/100 and
between steps: 5% max.) ●Max.
C+AC peak) or 600Vp-p ●Power
AC ±10%, 50/60Hz 20W
)W×153(6.1)H×335(13.4)Dmm
lbs.)

ssory

Unit for TS-940S/TS-830S/
with sjmple modification)

LIST OF KENWOOD ACCESSORIES

Model	Description	Complementary Equipment
AC-10	AC adaptor	CD-10/IF-232C
AJ-1	BNC male to UHF SO-239	
AJ-2	BNC female to UHF PL-259	
AJ-3	Thread-loc to BNC female	TH-21BT·A/31BT·A/41BT·A
AL-1	Lightning & static protector 100 W with SO-239	
AL-2	Lightning & static protector 1 kW with SO-239	
AT-130	Antenna tuner (80~10-m)	TS-130SE·V
AT-230	Antenna tuner (160~10-m)	TS-940S/930S/830S/530SP/430S/130SE
AT-250	Automatic antenna tuner (160~10-m)	TS-430S
AT-930	Automatic antenna tuner (80~10-m)	TS-930S
AT-940	Automatic antenna tuner (160~10-m)	TS-940S
AT-440	Automatic antenna tuner (80~10-m)	TS-440S
AX-2	Shoulder strap with antenna base	TR-2500/3500/2600A/3600A
BC-1	AC battery charger	TR-2500/3500
BC-2	AC battery charger	PB-21H/25/26, PB-2
BC-6	Quick Battery Charger	PB-21, PB-21H
BC-7	Rapid charger	TH-205AT/215A/315A/415A
BC-8	Compact charger	TH-205AT/215A/315A/415A
BH-4	Belt hook	TH-205AT/215A/315A/415A
BH-5	Swivel mount	TH-205AT/215A/315A/415A
BS-8	Pan display unit for SM-220	TS-940S/830S
BT-1	Manganese/alkaline battery case	TR-2500/3500
BT-2	Manganese/alkaline battery case (AAA size)	TH-21BT·A/31BT·A/41BT·A
BT-3	Manganese/alkaline battery case	TR-2600A/3600A
BT-4	Manganese/alkaline battery case (AA size)	TH-21BT·A/31BT·A/41BT·A
BT-5	Manganese/alkaline battery case	TH-205AT/215A/315A/415A
CD-10	Call sign display	
DC-21	DC-DC converter for 12 V operation	TH-21BT·A/31BT·A/41BT·A
DC-25	DC-DC converter for 12 V operation	TR-2500/3500
DC-26	DC-DC converter for 12 V operation	TR-2600A/3600A
DCK-1	DC operation kit	R-600/1000/2000
DCK-2	DC power cable kit with cigar lighter plug	R-5000
EB-2	External battery case	TH-21BT·A/31BT·A/41BT·A
EB-3	External battery case	TR-2600A/3600A
FC-10	Frequency controller	TM-201A·B/401A·B
FM-430	FM unit	TS-430S/670
GC-10	General coverage receiver unit	TS-670
HA-3	Vertical antenna	TS-660/670
HMC-1	Headset with VOX	TR-2600A/3600A TH-21BT·A/31BT·A/41BT·A
HS-5	Deluxe headphones (8 Ω)	Most models
HS-6	Small-size headphones (12.5 Ω)	
HS-7	Micro headphones (16 Ω)	
IC-10	IC kit	TS-440S/R-5000
IF-10A	Interface unit	TS-711A/811A
IF-10B	Interface unit	TS-940S
IF-232C	Interface adaptor	TS-711A/811A/440S/940S, R-5000
KB-1	Deluxe VFO knob	TS-830S/530S·SP, VFO-240
LF-30A	Low-pass filter	
LH-2	Deluxe leather case	TR-2500
LH-3	Deluxe leather case	TR-2600A/3600A
LH-4	Deluxe leather case	TH-205AT/215A/315A/415A
LH-5	Deluxe leather case	TH-205AT/215A/315A/415A

Model	Description
MA-5	5 band helical-type HF mobil antenna
MA-4000	2-m/70-cm dual band mobile antenna with duplexer
MB-3	Mobile mount
MB-4	Mobile mount
MB-9	Mobile mount
MB-10	Mobile mount
MB-11	Mobile mount
MB-201	Mobile mount
MB-430	Mobile mount
MB-4000	Mobile mount
MC-30S	Noise-cancelling hand microphone (4P)
MC-35S	Noise-cancelling hand microphone (4P)
MC-40S	UP/DOWN hand microphone (6P)
MC-43S	UP/DOWN hand microphone (8P)
MC-46	16-key auto-patch UP/DOWN microphone (6p)
MC-48B	16-key auto-patch UP/DOWN microphone (8p)
MC-50	Desk-top microphone (4P)
MC-55	Mobile microphone with time-out-timer (6P or 8P)
MC-60A	Deluxe desk-top microhone with built-in preamplifier (8P)
MC-60N4	Deluxe desk-top microphone (4P)
MC-80	Desk-top microphone with preamplifier (8P)
MC-85	Deluxe desk-top microphone with audio level compensation (8P)
MJ-46	Microphone plug adaptor (mic 4-P/radio 6-P)
MJ-48	Microphone plug adaptor (mic 4-P/radio 8-P)
MJ-64	Microphone plug adaptor (mic 6-P/radio 4-P)
MJ-68	Microphone plug adaptor (mic 6-P/radio 8-P)
MJ-84	Microphone plug adaptor (mic 8-P/radio 4-P)
MJ-86	Microphone plug adaptor (mic 8-P/radio 6-P)
MS-1	Mobile stand/charger
MU-1	DCL MODEM unit
PB-1	NiCd battery pack (12 VDC 800 mAh)
PB-2	NiCd battery pack (8.4 VDC 500 mAh)
PB-3	NiCd battery pack (7.2 VDC 800 mAh)
PB-4	NiCd battery pack (7.2 VDC 1600 mAh)
PB-16	Extre NiCd battery pack
PB-21	Extre NiCd battery pack
PB-21H	Heavy duty NiCd battery pack
PB-24	NiCd battery pack
PB-25	NiCd battery pack
PB-25H	Heavy duty NiCd battery pack
PB-26	NiCd battery pack
PC-1A	Phone patch controller

KENWOOD U.S.A. CORPORATION
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AMATEUR RADIO EQUIPMENT

General Catalog

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144MHz FM TRANSCEIVER
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MARCH, 1986 EDITION

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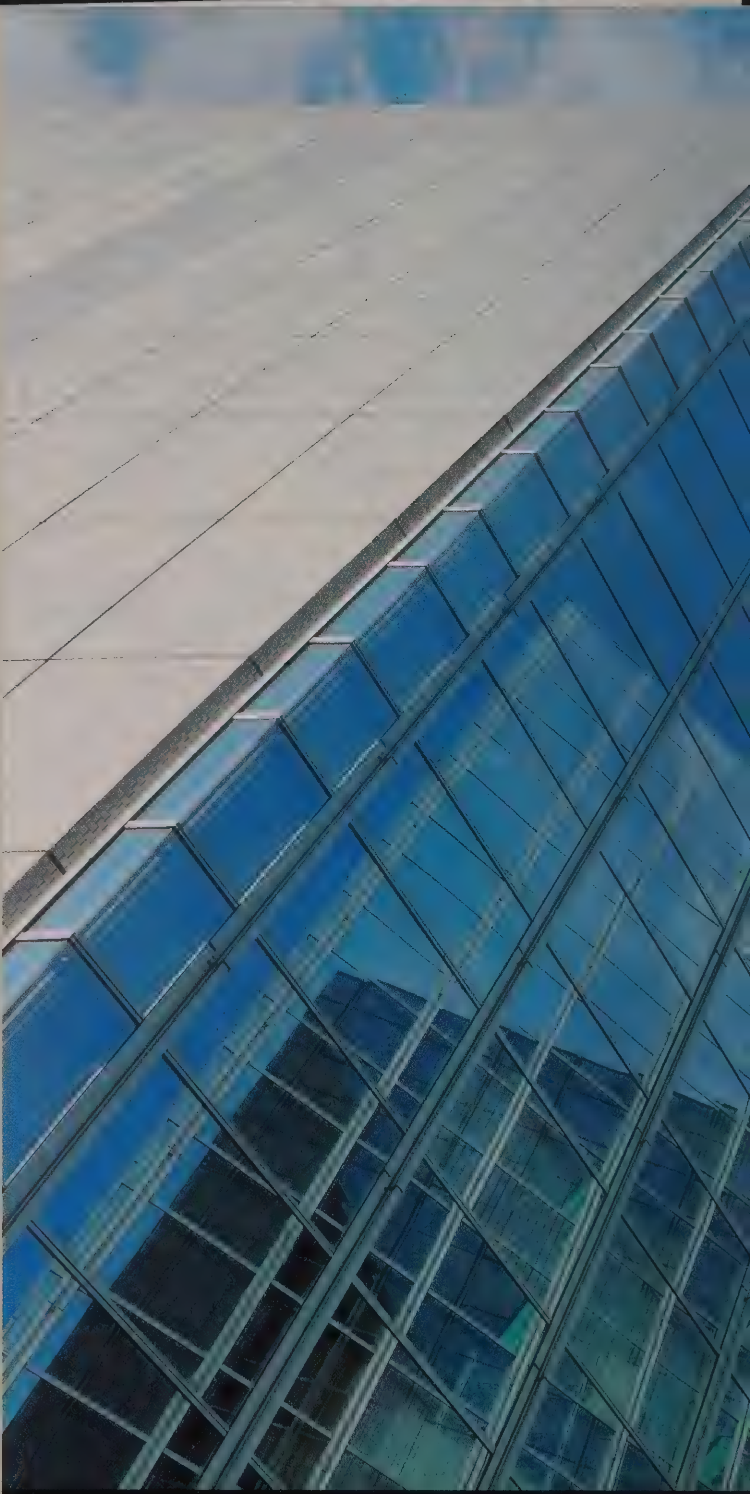
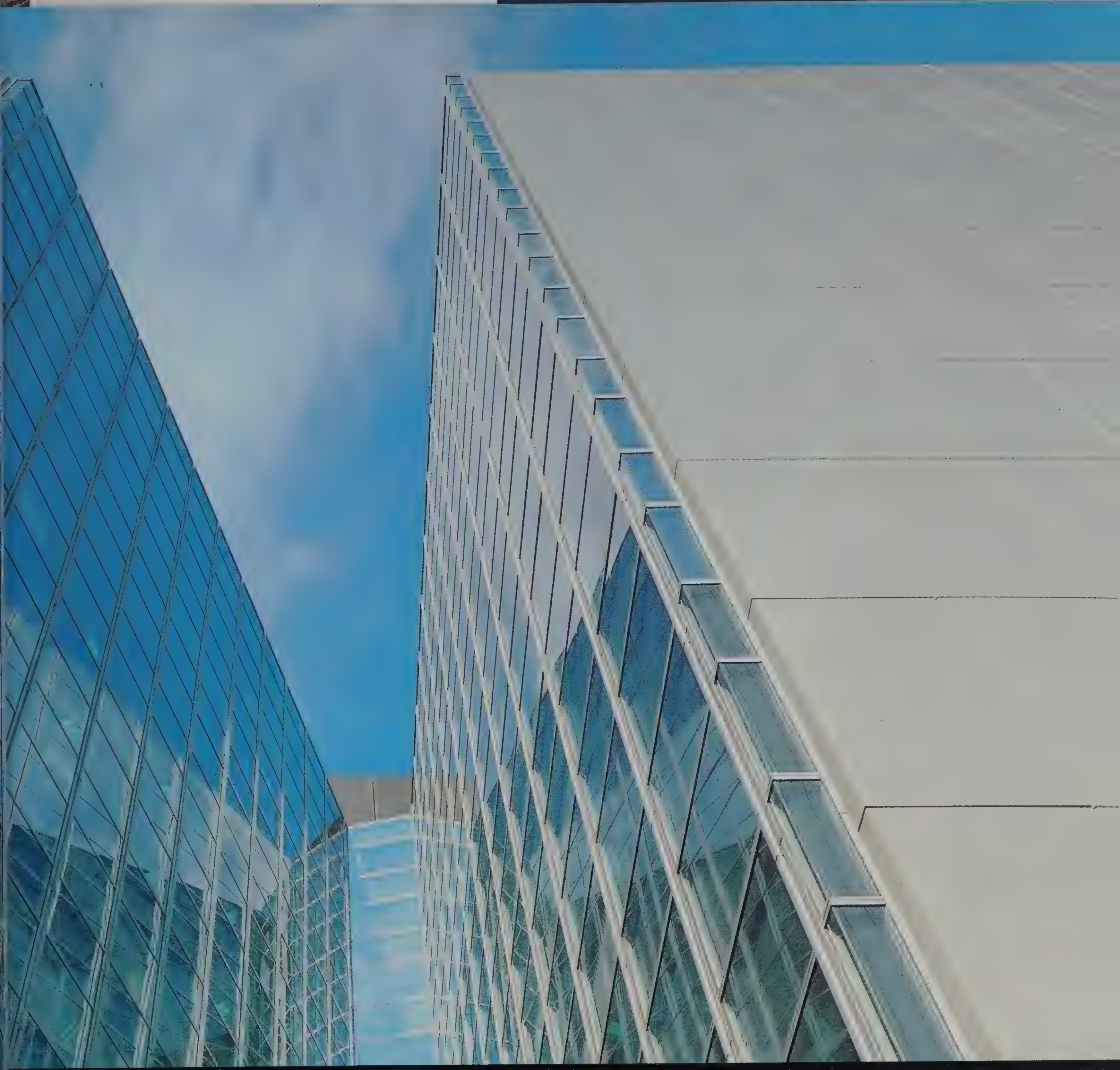


KENWOOD is a multi-national high-technology company whose annual sales are measured in the hundreds of millions of dollars. Founded in 194 KENWOOD has since grown to be recognized all over the world as a producer of the highest quality, most technologically advanced electronic products. These products are a testimonial to its manufacturing versatility, and include a broad range of Amateur radio equipment, land mobile transceivers and signalling products, home video equipment, home and automotive stereo sound products, satellite receiving equipment, and a complete line of electronic test equipment, including state-of-the-art wide-band oscilloscopes.

It was in the mid-1970's that the KENWOOD line of Amateur radio product began to assert a position of leadership in the highly competitive field of Amateur transmitting and receiving equipment sales. Its products soon earned a reputation for quality and dependability in performance, while, at the same time, incorporating the most advanced electronic circuit designs KENWOOD's engineering know-how that made possible king-size performance in ultra-compact products soon caught the attention of radio Amateurs all over the world, and its Amateur product line has since becom accepted as the standard by which all others are judged.



1946 Kasuga Musen Denki Shokai Ltd., the forerunner of KENWOOD, is founded in Nagano Prefecture. Its trademark is "TRIO".

1949 The new company's high frequency transformers meet the strict standards of NHK, the Japanese national broadcasting corporation—the first of their kind.

1952 Development of the 6R-4 6-tube communications grade receiver. Its manufacture started at the Tokyo Research Laboratory.

1955 Construction of the Tokyo plant. Full-scale volume production of audio and amateur radio communications equipment and testing instruments.

1957 Completion of the world's first commercially viable FM receiver. Exported to the Radio Shack Corporation of America.

1960 Company name is changed, "TRIO Co. Ltd." becoming a public stock company.

1963 Oversea's brand is "KENWOOD". Establishment of KENWOOD CORPORATION, a sales company of Hi-Fi products, in Los Angeles, California.

1968 TRIO-KENWOOD ELECTRONICS CO. is established in Brussels, Belgium, as a sales company for Europe.

1969 Stock listing in the 1st section of the Tokyo Stock Exchange.

1970 EDRs (European Depositary Receipts) are issued in Europe.

1975 TRIO-KENWOOD COMMUNICATIONS INC. is established in Gardena, California, to market amateur radio communications equipment in the United States.

1977 TRIO-KENWOOD COMMUNICATIONS GmbH. is set up in West Germany, for Europe.

1980 Introduced very high quality Hi-Fi car stereo components into U.S.A. and Japan.

1981 Introduced video cassette recorder (VHS) in U.S.A.

1983 Entered land mobile radio market in U.S.A.

1985 Introduced revolutionary TS-940S to hams world-wide.

1986 KENWOOD sales and afterservice network for Amateur radio equipment extends all over the world with the highest reputation.

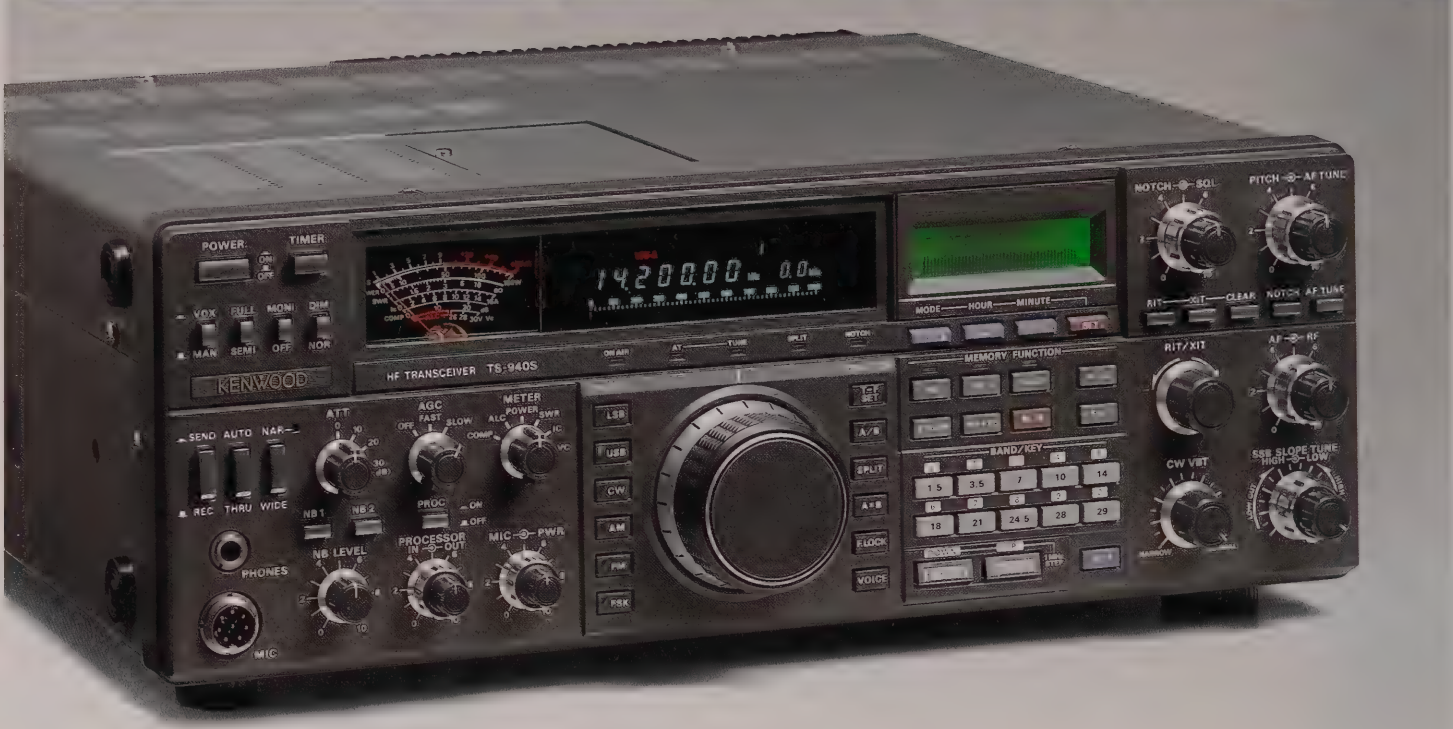
1952	**6R-4**	HF Communications Receiver
1955	**9R-4**	HF Communications Receiver
	TX-1	40m/80m AM, CW Transmitter
1958	**9R-42**	HF Communications Receiver
1959	**TX-88**	40m/80m AM, CW Transmitter
1960	**9R-59**	HF Communications Receiver
1961	**TX-88A**	80m ~ 6m AM, CW Transmitter
1962	**JR-60**	HF Communications Receiver with 6m or 2m VHF Converter
1963	**TX-26**	6m/2m AM, CW Transmitter
	JR-200	HF Communications Receiver
	TRH-1	80m/40m AM, CW Transceiver
1964	**JR-300S**	HF SSB, AM, CW Communications Receiver
1965	**TX-388S**	80m ~ 10m SSB, AM, CW Transmitter
1966	**TS-500**	80m ~ 10m SSB, AM, CW Transceiver
	9R-59D	HF Communications Receiver
	TX-88D	80m ~ 6m AM, CW Transmitter
	TR-1000	6m AM Portable Transceiver
1967	**JR-500S**	HF SSB, AM, CW Communications Receiver
	TX-15S/20S/40S	15m/20m/40m PSN type SSB Transceiver
1968	**TS-510D**	80m ~ 10m SSB, CW Transceiver
	TR-2	2m AM Transceiver
	TR-5000	6m AM, CW Transceiver
1969	**TR-1100**	6m FM, AM Portable Transceiver
	TR-5100/7100	6m/2m FM Mobile Transceiver
	9R-59DS	HF Communications Receiver
	JR-310	HF SSB, CW, AM Communications Receiver
	JR-599S	HF All-mode Compact Communications Receiver
	TX-88DS	80m ~ 6m AM, CW Transmitter
	TX-310	80m ~ 6m SSB, CW, AM Transmitter
	TX-599S	80m ~ 10m SSB, CW, AM Compact Transmitter
1970	**TS-511S/515**	80m ~ 10m SSB, CW HF Transceiver
	TR-1200	6m FM, AM Portable Transceiver
	TR-2200	2m FM Portable Transceiver
1971	**TR-5200**	6m AM, FM, CW Transceiver
	TS-311	80m ~ 10m SSB, CW Transceiver
	TS-801	80m ~ 10m SSB, CW Mobile Transceiver
1972	**TS-511S**	80m ~ 10m SSB, CW Transceiver
	TR-8000	440MHz FM Mobile Transceiver
	TR-7200	2m FM Mobile Transceiver
1973	**TR-2200A**	2m FM Portable Transceiver
	TR-7200A	2m FM Mobile Transceiver
	TR-7300	2m FM Synthesized Transceiver
	TS-700	2m All-mode Fixed Station Transceiv
	R-599S/A	HF Communications Receiver
	T-599S/A	80m ~ 10m SSB, CW, AM Transmitte
	TS-520	80m ~ 10m SSB, CW Transceiver
	TS-900	80m ~ 10m SSB, CW, FSK Transceiv
	QS-666	HF Communications Receiver
1974	**TR-8200**	70cm FM Mobile Transceiver
	TR-7010	2m SSB Mobile Transceiver
1975	**TR-1300**	6m SSB Portable Transceiver
	TR-3200	70cm FM Portable Transceiver
	TS-700A	2m All-mode Fixed Station Transceiv

KENWOOD
KENWOOD
JA1YKX

1976	**TS-600**	6m All-mode Fixed Station Transceiver
	TS-820S	160m – 10m SSB, CW, FSK Transceiver
	R-300	HF Communications Receiver
1977	**TS-520S**	160m – 10m SSB, CW HF Transceiver
	TR-7400A	2m FM Mobile Transceiver
	TR-7500	2m FM Mobile Transceiver
	TR-8300	70m FM Mobile Transceiver
	TS-700S	2m All-mode Fixed Station Transceiver
	TL-922	160m – 10m Linear Amplifier
1978	**SM-220**	Station Monitor
	R-820	HF Communications Receiver
	TR-2300	2m FM Portable Transceiver
1979	**TS-120S**	80m – 10m Compact SSB, CW Transceiver
	TS-180	160m – 10m SSB, CW, FSK Transceiver
	R-1000	HF Communications Receiver
	TS-770	2m/70cm FM, SSB, CW Dual Bander
	TR-9000	2m All-mode Mobile Transceiver
	TR-2400	2m FM Handheld Transceiver
	TR-7600/7625	2m FM Mobile Transceiver
1980	**TR-8400**	70cm FM Mobile Transceiver
	TR-7730	2m FM Mobile Transceiver
	TS-830S	160m – 10m SSB, CW Transceiver
	TS-130S	160m – 10m Compact SSB, CW Transceiver
1981	**TR-9500**	70cm All-mode Mobile Transceiver
	TR-2500	2m FM Handheld Transceiver
	R-600	HF Communications Receiver
	TS-530S	160m – 10m SSB, CW Transceiver
	TS-780	2m/70cm Dual Bander
1982	**TR-3500**	70cm FM Handheld Transceiver
	TR-9130	2m All-mode Mobile Transceiver
	TR-7950/30	2m FM Mobile Transceiver
	TS-930S	160m – 10m SSB, CW, AM Transceiver
	TS-430S	160m – 10m SSB, CW, AM Transceiver
	R-2000	HF, VHF Communications Receiver
1983	**TW-4000A**	2m/70cm FM Mobile Dual Bander
	TM-201A	2m FM Mobile Transceiver
	TM-401A	70cm FM Mobile Transceiver
1984	**TR-2600A**	2m FM Handheld Transceiver
	TM-211A/411A	2m/70cm FM Mobile Transceiver
	TH-21AT·A/41AT·A	2m/70cm FM Pocket Transceiver
	TS-711A/811A·B	2m/70cm All-mode Transceiver
	TR-50	1200MHz Portable Transceiver
1985	**TR-3600A**	70cm FM Handheld Transceiver
	TS-940S	160m – 10m SSB, CW, AM, FM Transceiver
	TH-31AT/A	220MHz FM Pocket Transceiver
	TM-2550A/30A	2-m FM Mobile Transceiver
	TM-201B/401B	2-m/70cm FM Mobile Transceiver
1986	**TM-2570A**	2-m FM Mobile Transceiver
	TS-440S	160m – 10m SSB, CW, AM, FM, Transceiver
	TR-751A	2-m All-mode transceiver

TS-940S

HF TRANSCEIVER



The TS-940S is a serious radio for the serious operator. Superb interference reduction circuits and high dynamic range receiver combine with superior transmitter design to give you no-nonsense, no-compromise performance that gets your signals through! The exclusive multi-function LCD sub-display graphically illustrates VBT, SSB slope, and other features.

OUTSTANDING RECEIVER PERFORMANCE AND SENSITIVITY SPECIFICATIONS

■ Superior dynamic range receiver front end

The IM (intermodulation) dynamic range characteristic for the receiver section is typically 102dB (20m, 50kHz spacing, 500Hz CW bandwidth), with an overall intercept point of +14dBm, noise floor level of −138dBm.

■ 160-10 meters operation, with general coverage receiver

Covers all Amateur bands from 160 to 10 meters, including WARC bands, it also features a 150kHz—30MHz general coverage receiver. Conceived and engineered digital PLL circuit provides superior frequency accuracy and stability. Band access keys for Amateur bands or UP/DOWN 1MHz step band switches across entire 150kHz—30MHz range.

■ All-mode operation

Operates 250W PEP input on USB, LSB, CW, FM and FSK, and 140W DC input on AM mode.

■ Superb Interference Reduction

a) SSB IF slope tuning

Independent HIGH CUT and LOW CUT controls permit the operator to easily and quickly define the most ideal IF passband width consistent with readability and interference rejection.

b) CW VBT (Variable Bandwidth Tuning)

The VBT control allows the passband width to be continuously varied within the range of the control without affecting the center frequency.

c) IF NOTCH filter

Only the interfering signal is reduced while the desired signal remains unaffected.

d) Audio filter built-in

Reduces interfering signals and white noise, providing a peak tuning characteristic for the AF frequency response.

e) Narrow/Wide various IF filters

MC-60A

SP-940

TS-940S

- **CW variable pitch circuit**
This is very useful in avoiding interference or for changing the pitch tone to a frequency that is easier to copy.
- **Dual-mode noise blanker**
Most effective in suppressing pulse (ignition) noise or "woodpecker" noise.
- **Built-in RIT/XIT**
Shifts the receive or transmit frequency in 10Hz steps across a range of ±9.99kHz, using an optical encoder.
- **All-mode squelch circuit**
Effective in suppressing background noise in all operating modes.
- **RF attenuator**
Includes a 4-step, (0, 10, 20, or 30dB) RF attenuator for optimum rejection of intermodulation distortion.
- **Switchable AGC circuit (OFF/FAST/SLOW)**
Provides optimum receiver operation in SSB/CW modes, and under all signal strength conditions.

AUTOMATIC ANTENNA TUNER PLUS LOW DISTORTION, HIGH RELIABILITY TRANSMITTER

- **Automatic antenna tuner (160—10 meters) built-in**
Covers all Amateur bands or may be ordered without the tuner installed.
- **Low distortion transmitter**
KENWOOD's unique transmitter design delivers top "quality KENWOOD" sound.
- **Full break-in CW (QSK operation)**
Capability allows the DX, contest or traffic operator to respond more quickly to the calling station.
- **Built-in speech processor**
A higher average "talkpower" plus improved intelligibility makes for outstanding DX performance.
- **RF output power control**
Continuously variable from 10 watts to maximum power, in any mode of operation.

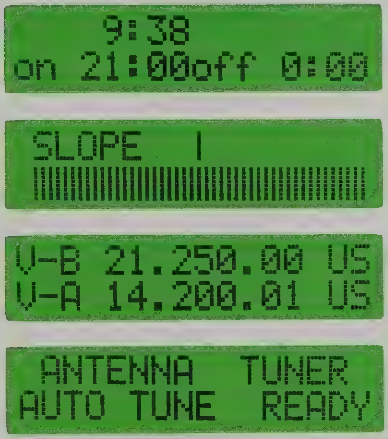
KH6WZ
WD6DJY

OPERATING FREQUENCY CONTROL USING NEW MICROPROCESSOR PLUS DIGITAL TECHNOLOGY

- **High stability, 10Hz step dual digital VFOs**
An engineered special optical encoder and the flywheel VFO knob give the TS-940S a positive tuning "feel".
- **40 memory channels**
Mode and frequency may be stored in 4 groups of 10 channels each.
- **Scan functions**
  - Memory scan: Memories without data stored are skipped.
  - Programmable band scan: Scans in 10Hz (100Hz in AM, FM modes) steps between memory channels "9" and "0".
- **Keyboard frequency selection**
Operating frequencies may be directly entered into the TS-940S without using the VFO knob.

MULTI-FUNCTION MAIN DISPLAY AND SUB-DISPLAY

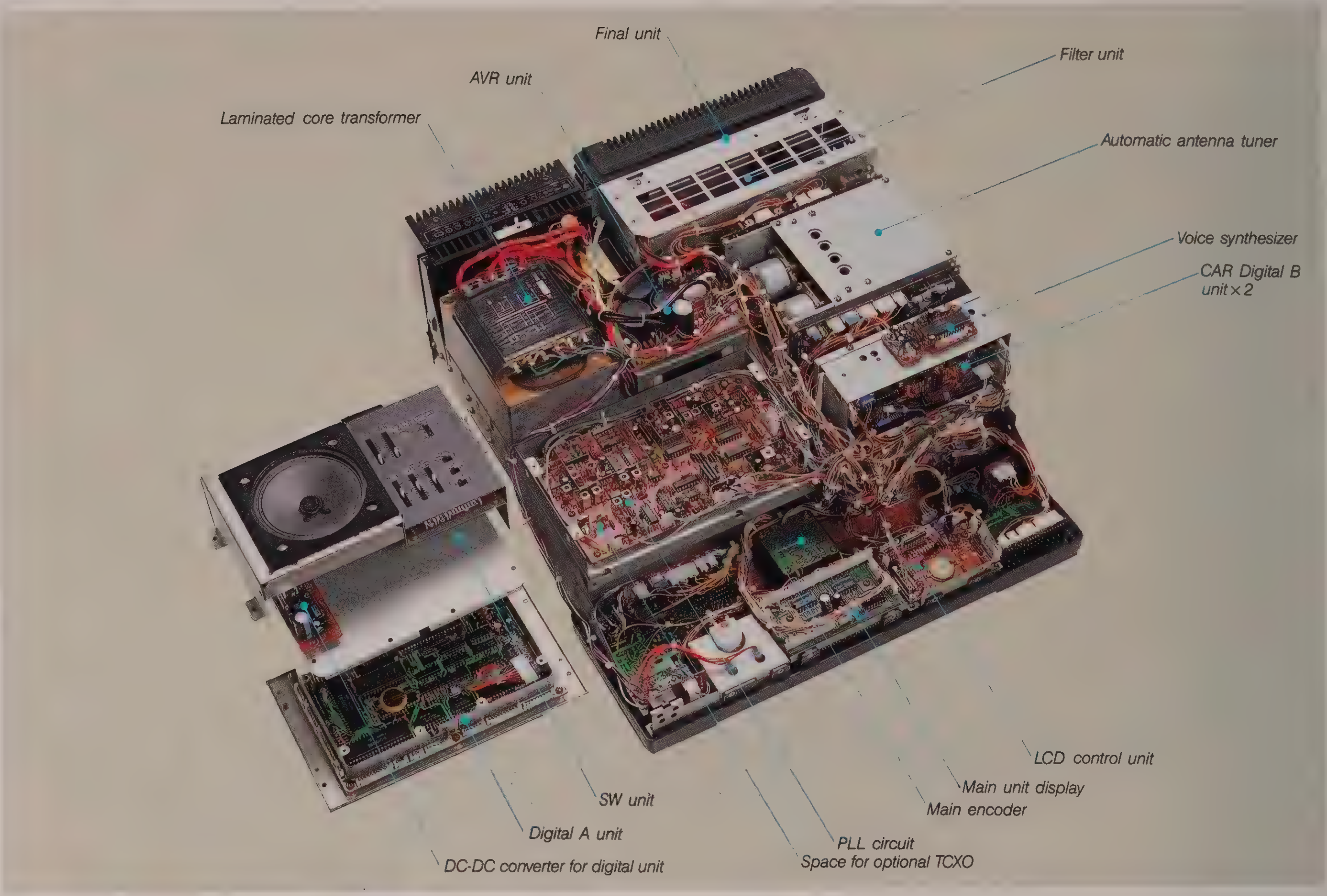
- **Large fluorescent tube digital main display with analog-type sub-scale**
Provides improved readability and allows increased operating speed.
- **Exclusive multi-function LCD sub-display**
Shows SSB slope tuning, CW VBT, as well as frequency, time, and the AT-940 antenna tuner status.



SW-2000

SM-220

TL-922/TL-922A (for U.S.A)
KENWOOD STATION MONITOR SM-220
KENWOOD TL-922A LINEAR AMPLIFIER
PLATE
LOAD
BAND


Final unit
Filter unit
AVR unit
Laminated core transformer
Automatic antenna tuner
Voice synthesizer
CAR Digital B unit × 2
LCD control unit
Main unit display
Main encoder
SW unit
Digital A unit
DC-DC converter for digital unit
PLL circuit
Space for optional TCXO

MECHANICAL DESIGN AND CONSTRUCTION

- **100% duty cycle transmitter**

Super efficient cooling system using special air ducting works with the internal heavy-duty power supply to allow continous transmission at full power output for periods exceeding one hour.

- **Rugged Zinc die-cast front panel**

Assure maximum mechanical stability under even the most severe operating conditions.

A VARIETY OF EXTRA, EASY-TO-OPERATE FUNCTIONS

- **Built-in AC power supply and high quality 4 inch (10 cm) speaker**
- **Clock/Timer function**
- **Transmission monitor circuit**
- **High stability RTTY transmit circuit**
- **Optional TCXO and voice synthesizer**
- **Dimmer switch**
- **100kHz marker**
- **Vox circuit**

Optional Accessores

AT-940: *Automatic Antenna Tuner*
Full coverage of (TS-940S only)
160—10 meters, including WARC bands.

SP-940: *External Speaker*

SM-220: *Station Monitor*
BS-8 Pan Display Unit

TL-922/TL-922A *(for U.S.A.):*
HF Linear Amplifier

PC-1A: *Phone Patch Controller*
(FCC part 68 registered)

HS-4/5/6/7: *Headphones*

MC-42S: *UP/DOWN Hand Microphone*

MC-60A: *Deluxe Desk-Top Microphone with built-in Pre-amplifier.*

MC-80: *Desk-Top Microphone with built-in Pre-amplifier.*

MC-85: *Multi-function Desk-Top Microphone with built-in Audio Level Compensation*

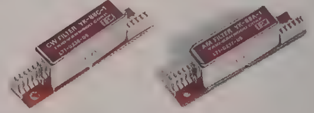
LF-30A: *Low-Pass Filter*

SW-200A, 2000: *SWR/POWER Meter*

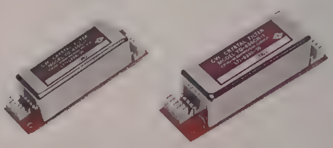
SO-1: *Superior Stability TCXO*
(Temperature compensated crystal oscillator)

VS-1: *Voice Synthesizer Unit*

YK-88C-1: *500Hz CW Filter for 8.83MHz IF*
YK-88A-1: *6kHz AM Filter for 8.83MHz IF*

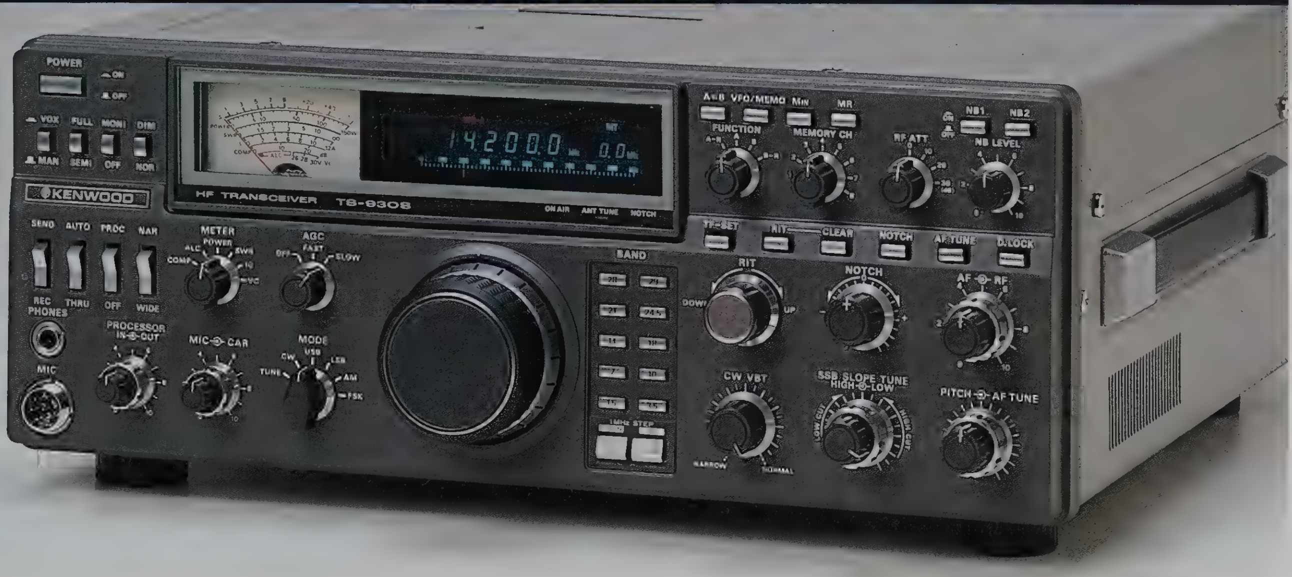


YG-455C-1: *500Hz CW Filter for 455kHz IF*
YG-455CN-1: *250Hz CW Narrow Filter for 455kHz IF*



TS-930S

HF TRANSCEIVER



The TS-930S is a superlative, high performance, all solid-state, HF transceiver capable of operation in the SSB, CW, FSK, and AM modes on all Amateur bands.

- **160—10 meter Amateur bands, plus 150kHz—30MHz general coverage receiver**

Covers all Amateur frequencies, including the new WARC bands. Modes of operation include SSB, CW, FSK, and AM.

- **Wide receiver dynamic range**

Dynamic range performance for receiver section is 100dB, with an overall intercept point of +12dBm, noise floor level of 138dBm, and a blocking dynamic range of 139dB (20m, 50kHz spacing, 500Hz CW bandwidth).

- **All solid-state, 28 volt operated final amplifier**

The quality of transmitted signal is measurably improved over contemporary designs through the use of a 28 volt power source.

- **RF power input**

The TS-930S runs 250W PEP input on USB, LSB, CW and FSK, and 80W DC input on AM mode.

- **Automatic antenna tuner built-in**

Available with the AT-930 antenna tuner built-in, or as an option to be added later.

- **CW full break-in**

Capability allows the DX, traffic or contest operator to respond more quickly to the calling station.

- **Dual digital VFOs**

Built-in 10Hz step dual digital VFOs operate independently of each other, and include band information, allowing for ease of split frequency or cross-band operation without the need for a separate VFO.

- **Built-in RIT**

Shifts the receive frequency in 10Hz steps across a range of ±9.99kHz, using an optical encoder.

- **Eight memory channels**

Store frequency and band information, making operation simple and convenient.

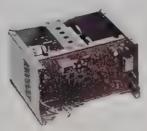
- **SSB IF slope tuning**
- **CW VBT (Variable Bandwidth Tuning)**
- **Pitch control**
- **Narrow/Wide filter selection**
- **IF notch filter**
- **Dual mode noise blanker ("pulse" or "woodpecker")**
- **Audio filter built-in**
- **Fluorescent tube digital display**
- **RF speech processor**
- **AC power supply built-in**

- **Other circuits**

SSB monitor/RF attenuator (10, 20 or 30dB)/ VOX/100kHz marker

Optional Accessories

AT-930: *Automatic Antenna Tuner (80m ~ 10m)*



SP-930: *External Speaker*

SM-220: *Station monitor*

TL-922/TL-922A *(for U.S.A.): HF Linear Amplifier*

PC-1A: *Phone Patch (FCC part 68 registered)*

HS-4/5/6/7: *Headphones*

MC-42S: *UP/DOWN Microphone*

MC-60A/80/85: *Deluxe Desk-top Microphones*

LF-30A: *Low-Pass Filter*

SW-200A/2000: *SWR/Power Meters*

SO-1: *TCXO (Temperature Compensated Crystal Oscillator)*

YK-88A-1: *6kHz AM Filter for 8.83MHz IF*

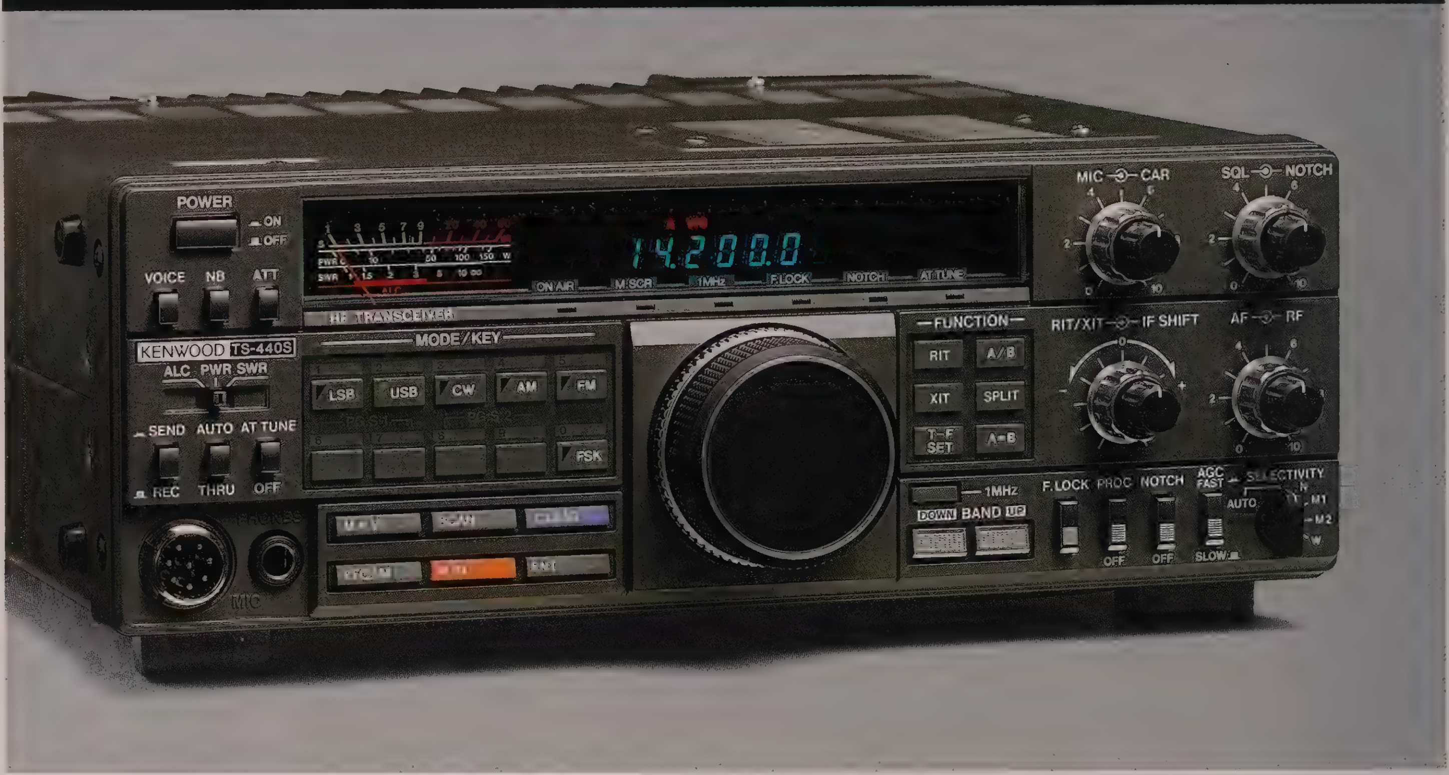
YK-88C-1: *500Hz CW Filter for 8.83MHz IF*

YG-455C-1: *500Hz CW Filter for 455kHz IF*

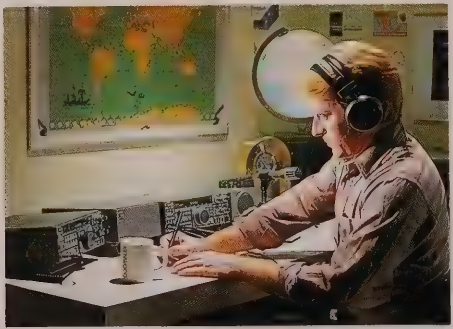
YG-455C-1: *250Hz CW Narrow Filter for 455kHz IF*

TS-440S

HF TRANSCEIVER


POWER
ON
OFF
VOICE
NB
ATT
KENWOOD TS-440S
ALC PWR SWR
SEND
AUTO
AT TUNE
REC
THRU
OFF
MIC
14.2000
ON AIR
M.SCR
1MHz
F.LOCK
NOTCH
AT TUNE
HF TRANSCEIVER
MODE/KEY
LSB
USB
CW
AM
FM
FSK
SCAN
FUNCTION
RIT
A/B
XIT
SPLIT
T-F SET
A=B
1MHz
DOWN BAND UP
MIC CAR
SQL NOTCH
RIT/XIT IF SHIFT
AF RF
F.LOCK
PROC
NOTCH
AGC FAST
SLOW
SELECTIVITY
AUTO
N
M1
M2
W

The TS-440S is an HF transceiver designed to condense every conceivable feature for SSB, CW, AM, FM and AFSK mode of operation on all Amateur bands in compact package. It is the ultimate compact size with the automatic antenna tuner built-in and featuring a highly efficient final amplifier cooling system. It incorporates a 100kHz to 30MHz general coverage receiver having superior dynamic range.



- **160—10 meters Amateur band operation with 100kHz to 30MHz general coverage revciver**

The TS-440S covers all Amateur bands from 160 to 10 meters, including the new WARC bands. Its superior dynamic range general coverage receiver provides reception on any frequency from 100kHz to 30MHz.

- **All-mode operation**

Mode selection USB, LSB, CW, AM, FM or AFSK is quickly accomplished through use of the front panel mode keys. International Morse Code confirms the selected mode.

- **Automatic antenna tuner (80—10 meters) built-in**

The TS-440S is available with an automatic antenna tuner covering all Amateur bands from 80 through 10 meters built-in, or may be ordered without the tuner installed.

- **100% duty cycle transmitter**

The 100W final amplifier stage is mounted directly on its die-cast aluminum heat sink. The high efficiency of the cooling system allows continuous transmission (Key Down) at full power output for periods exceeding one hour. (The PS-50 Heavy Duty Power Supply is required for full power key down transmission such as RTTY, SSTV or FM).

- **Compact and lightweight**

Designed with every conceivable feature plus an automatic antenna tuner built-in. Measures only 270(10.6)W × 96(3.8)H × 313(12.3)Dmm (inch) and weighs 7.3kg (16.1 lbs.)

- **CW full break-in, semi break-in, and VOX circuit**

A full break-in capability allows the DX or contest operator to respond more quickly to the calling station. To the "ragchewer", it means a more natural conversation.

- **Super receiver dynamic range**

The receiver front end has been specifically designed to provide superior dynamic range. The IM dynamic range is 102dB, with an overall intercept point of +15dBm, noise floor level of −138dBm. (with the optional 500Hz CW filter YK-88C installed).

SP-430

Superb interference reduction

The TS-440S incorporates a number of special interference.

- Dual IF crystal filter improves SSB operation.
- IF shift circuit
- Tunable NOTCH filter

Selectable IF filters

Offers a fully flexible system of IF filter selection when optional filters are installed. The 5-position selectivity switch (AUTO, N, M_1, M_2 and W) may be set to "AUTO", in which case the optimum filter bandwidth is automatically chosen for the mode selected. Manual selection is also possible, allowing the operator to choose alternative bandwidths depending on QRM conditions for optimum reception.

POSITION \ MODE	SSB	CW	AM	FSK	FM
AUTO	*1 2.1/ *2 1.8 kHz	*3 500/ *4 270 Hz	6 kHz	*3 500/ *4 270 Hz	12 kHz
N	*3 500/*4 270 Hz				
M_1	*1 2.1/*2 1.8 kHz				
M_2	2.2 kHz				
W	6 kHz				

*1 option YK-88S installed
*2 option YK-88SN installed
*3 option YK-88C installed
*4 option YK-88CN installed

Frequency control function, using digital VFOs

- **10Hz step dual digital VFOs**
  Built-in 10Hz (100Hz in AM, FM mode) step dual digital VFOs operate independently of each other, allowing ease of spilit frequency or cross-band operation in different modes without the need for separate VFO.
- **UP/DOWN switches (1MHz step)**
  Allow easy selection of the desired Amateur band.
- **100 memories store frequency, band and mode**
  100 memory channels allow storage of frequency, band, and mode information, providing increased convenience with simplicity of operation.
- **Keyboard frequency selection**
  The VFO frequency may be directly entered using the front panel number keys.
- **Memory scroll**
  A convenient function "memory scroll" may be used to check memory channel data or to find a vacant channel on the display without changing operating frequency and mode.
- **Memory scan**
  Any or all 100 memory channels may be scanned.
- **Dual programmable band scan**
  Allow selection of the desired frequency groups to be scanned. Both groups may also be scanned, one after the other.
- **Built-in RIT/XIT**
  The RIT/XIT shifts only the receiver/transmitter frequency, to tune in stations slightly off frequency, or when a DX station may be listening "off frequency".
- **Optional TU-8 CTCSS encoder**
  Channels 90 through 99 are used for split frequency memory. Useful for 10 meter FM repeater operation.

All-mode squelch circuit

Effective in suppressing background noise in all operating modes.

RF attenuator

A 20dB attenuator provides optimum rejection of intermodulation distortion from extremely strong signals.

Switchable AGC circuit (FAST/SLOW)

The automatic gain control is activated by a two-position FAST/SLOW switch, to provide optimum receiver operation.

Adjustable VFO tuning torque

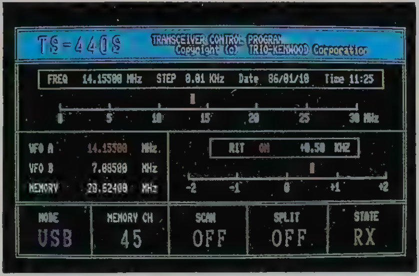
The tuning control torque is adjustable using the outer ring of the main knob.

Non-volatile operating system with lithium battery memory back-up

All KENWOOD transceivers retain microcoded operating functions even when the lithium memory cells fail. No factory re-programming is necessary! Estimated five-year life.

Optional personal computer control (IF-232C/IC-10)

The interface unit is compatible with computers with an accessible RS-232C port. Software is not available from KENWOOD.

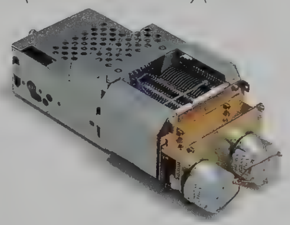


```
TS-440S      TRANSCEIVER CONTROL PROGRAM
             Copyright (c)  TRIO-KENWOOD Corporation

FREQ  14.15500 MHz   STEP  0.01 KHz   Date  86/01/10   Time 11:25

 0       5       10       15       20       25       30 MHz

VFO A      14.15500  MHz       RIT  ON      +0.50  KHZ
VFO B       7.08500  MHz
MEMORY     28.62400  MHz      -2    -1    0    +1    +2

MODE    MEMORY CH    SCAN    SPLIT    STATE
USB        45        OFF     OFF      RX
```

- **Multi-function meter, with SWR circuit**
- **Fluorescent tube digital display**
- **LED indicators for miscellaneous functions**
- **Optional "Voice Synthesizer Unit (VS-1)"**
- **Built-in noise blanker**
- **Built-in speech processor circuit**
- **"F. LOCK" switch**
- **UP/DOWN MIC (MC-42S) included**

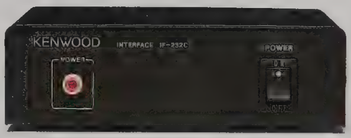
Optional Accessories

AT-440: *Internal Automatic Antenna Tuner (80-m—10-m bands) (Built-In or Option)*



AT-250: *Automatic Antenna Tuner (160-m—10-m bands)*
AT-130: *Compact Antenna Tuner (80-m—10-m bands)*
PS-50: *Heavy Duty Power Supply Designed to match the TS-440S in size, color and appearance. Supplies regulated 13,8V DC at 20A with built-in cooling fan and protection circuits for maximum reliability*

PS-430: *DC Power Supply*
SP-430: *External Speaker*
SP-40: *Compact Mobile Speaker (4Ω)*
SP-50: *Mobile Speaker (8Ω)*
PG-2C: *DC Cable*
MB-430: *Mobile Mount*
MC-60A/80/85: *Deluxe Desk-Top Microphones*
MC-55: *Mobile Microphone with Time-Out-Timer*
MC-42S: *UP/DOWN Microphone*
YK-88C: *500Hz CW Filter*
YK-88CN: *270Hz CW Filter*
YK-88S: *2.4kHz SSB Filter*
YK-88SN: *1.8kHz SSB Filter*
HS-4/5/6/7: *Headphones*
PC-1A: *Phone Patch (Available only where phone patch operation is legal)*
SW-100A/200A/2000: *SWR/POWER Meter*
MA-5: *Mobile Antenna (VP-1: Bamper Mount for MA-5)*
IF-232C/IC-10: *Interface Unit*



VS-1: *Voice Synthesizer Unit*
TU-8: *CTCSS Tone Unit*

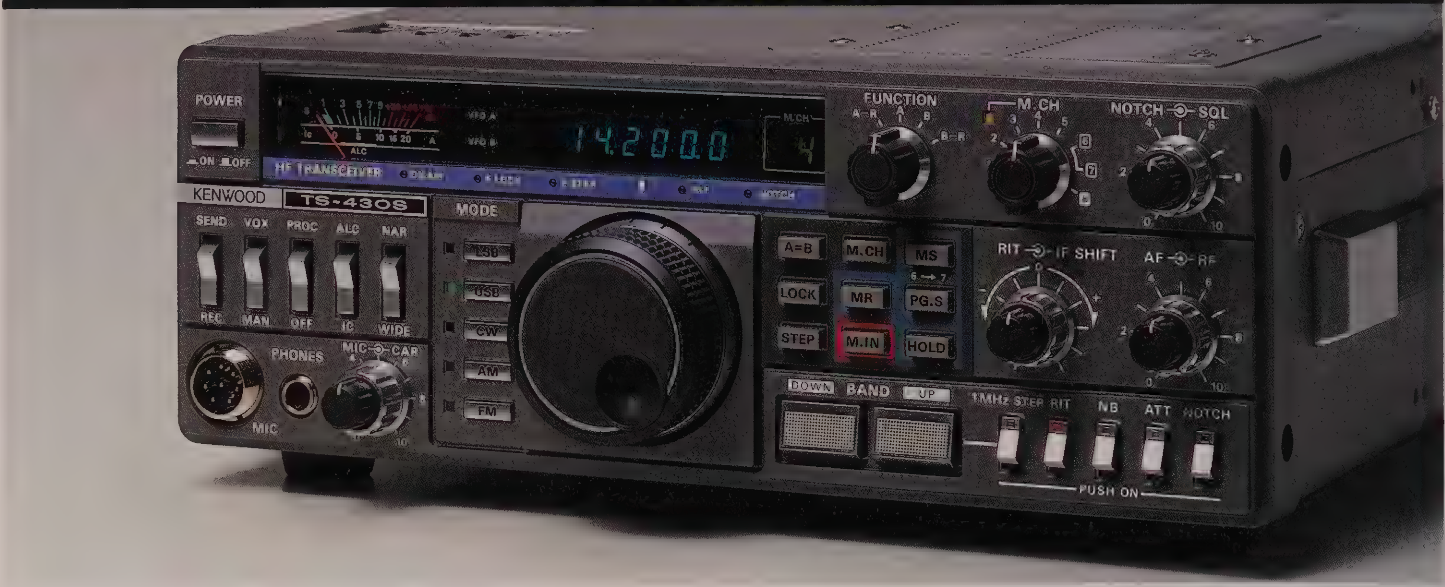
SW-2000
TS-711A
TS-811A
PS-50
TS-440S
MC-85

699.95

134.95 (PS430)

TS-430S

HF TRANSCEIVER



The TS-430S combines the ultimate in compact styling with advanced circuit design and performance. An all solidstate SSB, CW, and AM transceiver, with FM optional, covering the 160—10 meter Amateur bands, it also incorporates a 150kHz—30MHz general coverage receiver having a superior dynamic range.

- **160—10 meters operation, with general coverage receiver**
  With 160—10 meter Amateur band coverage, including WARC bands, it also features a 150kHz—30MHz general coverage receiver.
- **USB, LSB, CW, AM, with optional FM**
  Operates on USB, LSB, CW, and AM, with optional FM, internally installed. Mode selection is quickly accomplished through the use of front panel mode keys with adjacent LED' indicator.
- **All solid-state technology**
  Input rated 250W PEP on SSB, 200W DC on CW, 120W on FM (optional), 60W on AM. built-in cooling fan, multi-circuit final protection.
- **Compact, lightweight design**
- **Superior receiver dynamic range**
  Use of 2SK 125 junction-type FETs in the Dyna-Mix high sensitivity, balanced, direct mixer circuit provides superior dynamic range.
- **10Hz step dual digital VFOs**
  10Hz step dual digital VFOs operate independently, include band and mode information. Different band and mode cross operation possible. Dial torque adjustable. STEP switch for tuning in 10Hz or 100Hz steps.
- **Eight memory capability for storing frequency, mode, and band data**
  Memories store frequency, mode, and band data. Eight memory stores, receives, and transmits frequencies independently. M.CH switch for operation of memory as independent VFO or for fixed frequency.
- **Memory scan**
  Scans memories in which data is stored.
- **Programmable automatic band scan**
  Scans programmed band width with adjustable scan speed.
- **IF shift circuit for minimum QRM**
  IF passband may be moved to place interfering signals outside the passband, for best interference rejection.
- **Tunable notch filter built-in**
  Deep, sharp, tunable, audio notch filter.
- **Narrow-wide filter selection**
  NAR-WIDE switch for IF filter selection on SSB and CW when optional filters are installed. (2.4kHz IF filter built-in).
- **Speech processor built-in**
  Improves intelligibility, increases average "talk-power".
- **All-mode squelch circuit built-in**
  Effective in suppressing background noise in all operating modes during key-up intervals.
- **Noise blanker built-in**
  Eliminates pulse-type interference such as ignition noise.

→ own

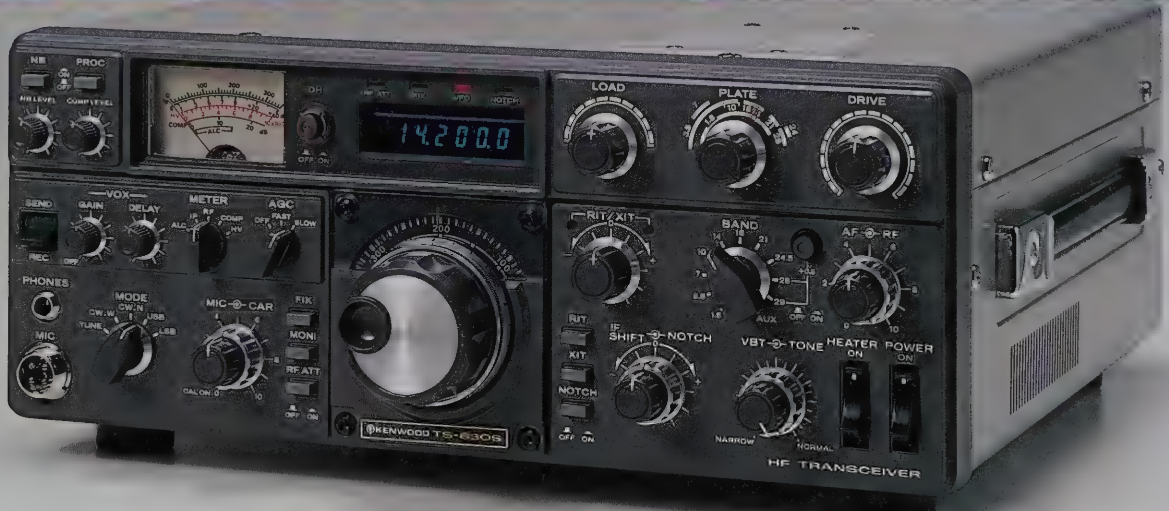
Optional Accessories

AT-250: *Automatic Antenna Tuner (160—10-m)*
AT-130: *Compact Antenna Tuner (80—10-m)*
PS-430: *Compact AC Power Supply*
SP-430: *External Speaker*
MB-430: *Mobile Mounting Bracket*
VP-1: *Mobile Mount for MA-5*
FM-430: *FM Unit*
TL-922/922A (for U.S.A.): *HF Linear Amplifier*
PC-1A: *Phone Patch*
HS-4/5/6/7: *Headphones* ?
MC-42S: *UP/DOWN Hand Microphone*
MC-55 (8-pin): *Mobile Microphone*
MC-60A/80/85: *Deluxe Desk-Top Microphone*
LF-30A: *Low-Pass Filter*
MA-5: *HF Mobile Antenna*
SW-200A, 2000: *SWR/Power Meter*
YK-88A: *6kHz AM Filter* ← 62.95
YK-88C: *500Hz CW Filter*
YK-88CN: *270Hz CW Filter*
YK-88SN: *1.8kHz SSB Narrow Filter*

- **Fluorescent tube digital display**
- **RF attenuator (20dB)**
- **Vox circuit, plus semi-break-in with side-tone.**
- **Lithium battery memory back-up**

TS-830S

HF TRANSCEIVER



The TS-830S is a high-performance, very affordable, HF SSB/CW transceiver with every conceivable operating feature built-in for 160 through 10 meters (including the three new bands).

- **160-10 meters including three new bands**
Covers all Amateur frequencies between 1.8 and 29.7MHz, including the new bands.

- **Wide receiver dynamic range**
Receiver section has a very wide dynamic range with impressive IMD rejection characteristics, resulting in increased immunity to strong, local signal.

- **VBT (Variable Bandwidth Tuning)**
The inclusion of the VBT circuit is capable of varying continuously the IF filter passband width, optimum IF bandwidth may be established relative to varying conditions of interference.

- **IF notch filter**
Sharp, deep notch characteristics will eliminate a strong interfering carrier within the passband of the receiver section.

- **IF shift**
The VBT and notch circuits, when combined with the IF shift, provide higher adjacent channel selectivity, very useful under crowded conditions.

- **Built-in digital display**
A large, six-digit, fluorescent tube display is built into the TS-830S, backed up by an analog sub-dial.

- **Various IF filter options**

- **6164B final with RF NFB**
RF negative feedback, using two 6164Bs in the final amplifier, provides optimum IMD characteristics for high quality transmission.

- **Innovative PLL system**

- **More flexibility with optional digital VFO (VFO-230)**

- **RF speech processor**
Provides added audio punch and increases average SSB output power, while suppressing sideband splatter.

- **Adjustable noise-blanker level**
Eliminates pulse-type (such as ignition) noise, adjusts the threshold level of the noise amplifier.

- **Adjustable audio tone**
Adjusts receiver audio frequency response for best readability under various conditions.

- **RF attenuator (20dB)**

- **RIT/XIT**

- **SSB monitor circuit**

- **Expanded frequency coverage**

- **Built-in AC power supply**

- **Other versatile provisions**
Built-in 25kHz marker/VOX circuit for SSB operation and CW semi-break-in operation with sidetone/Switchable AGC circuit (SLOW/FAST/OFF)/CW audio tone circuit/CW zero-beat function

Optional Accessories

AT-230: *Antenna Tuner*

SP-230: *External Speaker*

VFO-230: *Digital Remote VFO*

VFO-240: *Remote VFO*

SM-220: *Station Monitor*

TL-922/922A (for U.S.A.): *HF Linear Amplifier*

PC-1A: *Phone Patch*

HS-4/5/6/7: *Headphones*

MC-30S (500Ω)/**MC-35S** (50kΩ): *Noise-Cancelling Hand Microphone*

MC-50 (50kΩ/500Ω): *Desk-top Microphone*

SW-200A(200W)/2000(2kW): *SWR/Power Meter*

LF-30A: *Low-Pass Filter*

YG-455C: *500Hz CW Filter*

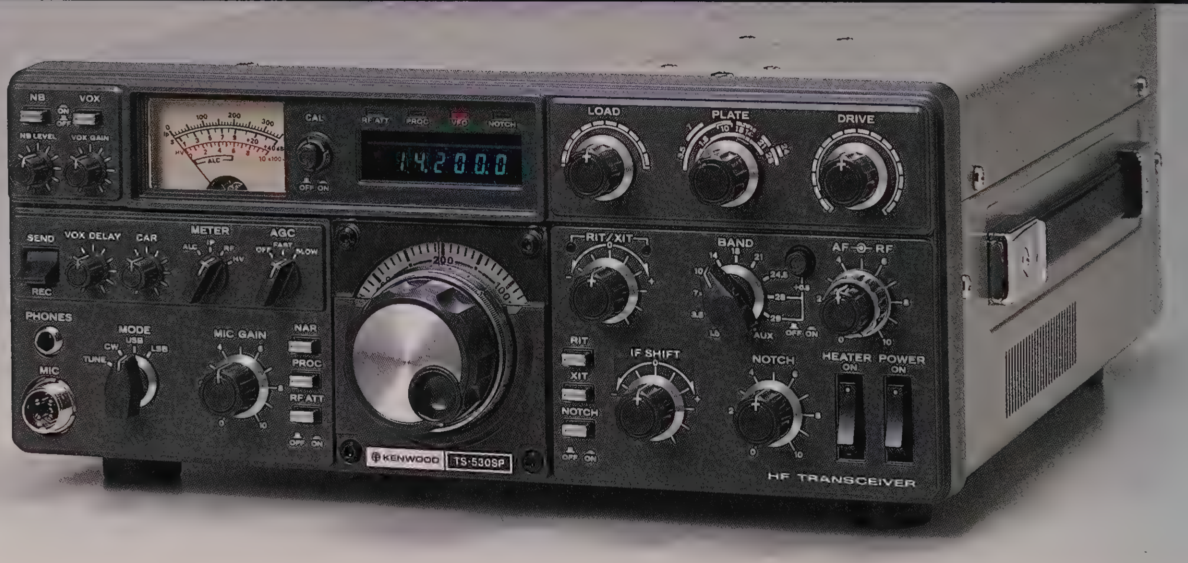
YG-455CN: *250Hz CW Filter*

YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

TS-530SP

HF TRANSCEIVER



The TS-530SP HF transceiver is designed in accordance with KENWOOD's latest, most advanced circuit technology, providing wide dynamic range, high sensitivity and very sharp selectivity.

- **160—10 meter coverage including three new bands**

Covers all Amateur bands from 160 to 10 meters, including the new bands.
Operating modes include LSB, USB, and CW.

- **Built-in digital display**

Frequencies are easy to read on the large, built-in, six-digit, fluorescent-tube display, backed up by an analog sub-dial.

- **Narrow/Wide filter combinations**

The various filter bandwidth mode combinations are shown in the chart. (receiving only):

TS-530SP OPTIONAL FILTER COMBINATIONS

MODE	SSB		CW	
	WIDE	NARROW	WIDE	NARROW
YK-88SN	2.4kHz	1.8kHz	2.4kHz	1.8kHz
YK-88C	2.4kHz	—	2.4kHz	500Hz
YK-88CN	2.4kHz	—	2.4kHz	270Hz
YK-88SN + YK-88C	2.4kHz	1.8kHz	*2.4kHz or 1.8kHz	500Hz
YK-88SN + YK-88CN	2.4kHz	1.8kHz	*2.4kHz or 1.8kHz	270Hz
YK-88C + YK-88CN	2.4kHz	500Hz	500Hz	270Hz

*2.4kHz or 1.8kHz selected by inside jumper.

- **Built-in tuneable notch filter**

A sharp notch filter is built into the audio circuit, it is tunable to permit adjustment of the system for best interference rejection.

- **Wide receiver dynamic range**

The receiver section exhibits a very wide dynamic range with especially good IMD rejection characteristics, resulting in greater immunity to strong, local signals.

- **Built-in speech processor**

Combines an audio compression amplifier with change of ALC time constant for extra audio punch and increased average SSB output power, and supresses sideband splatter.

- **Advanced single-conversion PLL system**

Eliminates the requirement for a crystal element for each band.

- **Adjustable noise-blanker level**

Pulse-type noise (such as ignition) is eliminated by the built-in noise-blanker.

- **RF attenuator (20dB) for IMD rejection**

Provides optimum rejection of intermodulation distortion from extremely strong signals.

- **More flexibility with optional VFO**
- **Expanded frequency coverage**
- **Built-in VOX semi-break-in**
- **Built-in 25kHz marker**
- **RIT/XIT**
- **Attractive appearance with rugged construction**

Designed to enhance the appearance of any ham shack, while providing ease of operation with a functional layout of controls.

- **Amplified type AGC (Automatic Gain Control) circuit**

Activated by a three-position (OFF/FAST/SLOW)

- **Built-in AC power supply**
- **Amplified type ALC circuit**
- **Final cooling fan**

Optional Accessories

AT-230: *Antenna Tuner*

SP-230: *External Speaker*

VFO-230: *Digital Remote VFO*

VFO-240: *Remote VFO*

SM-220: *Station Monitor*

TL-922/922A (for U.S.A.): *HF Linear Amplifier*

PC-1A: *Phone Patch*

HS-4/5/6/7: *Headphones*

MC-30S(500Ω)/35S(50kΩ): *Noise Cancelling Hand Microphone*

MC-50: *Desk-top Microphone*

SW-200A(200W)/SW-2000(2kW): *SWR/Power Meter*

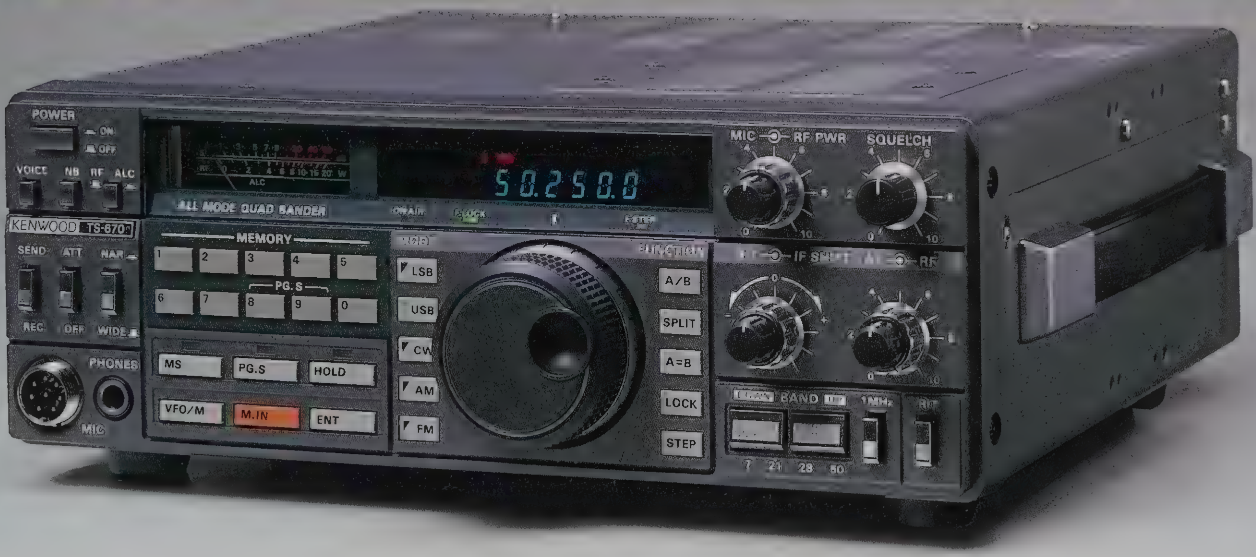
LF-30A: *Low-Pass Filter*

YK-88C: *500Hz CW Filter*

YK-88SN: *1.8kHz SSB Narrow Filter*

TS-670

ALL-MODE "QUAD-BANDER" TRANSCEIVER



The TS-670 "Quad-Bander" is a unique all-mode transceiver that covers the 6 meter VHF band, and the 10, 15, and 40 meter HF bands, combining the ultimate in compact size with advanced circuit design and performance.

- **6-m VHF, plus 10, 15, and 40-m HF**

  Provides coverage of the 6-m VHF band, as well as the 10, 15, and 40-m HF bands.

- **Optional GC-10 general coverage receiver unit**

  Features a superior dynamic range, and may be easily installed within the TS-670 cabinet.

- **LSB, USB, CW, AM, all-mode, with FM optional (FM-430)**

  Modes of operation include LSB, USB, CW, and AM, in transmit or receive.

- **Built-in 10Hz dual digital VFO's**

  Operate independently of each other, allowing for ease of split frequency or cross-band operation, in different modes, without the need for a separate VFO.

- **80 memory capability for storing frequency, band, and mode.**

  The 80 memory channels allow storage of frequency, band, and mode data, providing increased convenience with simplicity of operation. Memory information is backed-up by an internal lithium battery (est. 5 year life). Memories are divided into 8 groups of 10 channels each, for scanning purposes. The operator may select any 2 groups for scanning, but if no selection is made, group "0" will be automatically selected.

- **Direct frequency key selection**

  Enter a frequency directly to either VFO or to a memory channel, utilizing the 10-key pad.

- **Two-color fluorescent tube display**

  Indicates frequency in 100Hz increments (10Hz modifiable), and includes LED indicators that signal the specific functions being used.

- **Voice syntheiszer unit (optional)**

  An optional VS-1 Voice Synthesizer Unit is available, which announces the frequency when the VOICE switch depressed.

- **IF shift circuit**
- **All-mode squelch circuit**
- **CW semi break-in circuit, with side tone**
- **Narrow-wide filter selection**
- **Separate antenna connector for 6-m and HF**
- **Frequency lock**
- **Noise blanker**
- **RF attenuator**
- **RF power control**

Optional Accessories

PS-430: *Base Station Power Supply*

KPS-7A: *DC Power Supply*
(Available only in U.S.A.)

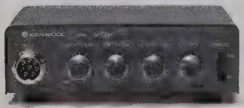
SP-430: *External Speaker*

FM-430: *FM Unit*

GC-10: *General Coverage Receiver Unit*

VS-1: *Voice Synthesizer Unit*

VOX-4: *VOX/Speech Processor*



MB-430: *Mobile Mount*

HS-4/5/6/7: *Headphones*

MC-42S: *UP/DOWN Hand Microphone*

MC-55 (8P): *Mobile Boom Microphone*

MC-60A: *Deluxe Desk-top Microphone*

MC-80: *Desk-top Microphone*

MC-85: *Multi-function Desk-top Microphone*

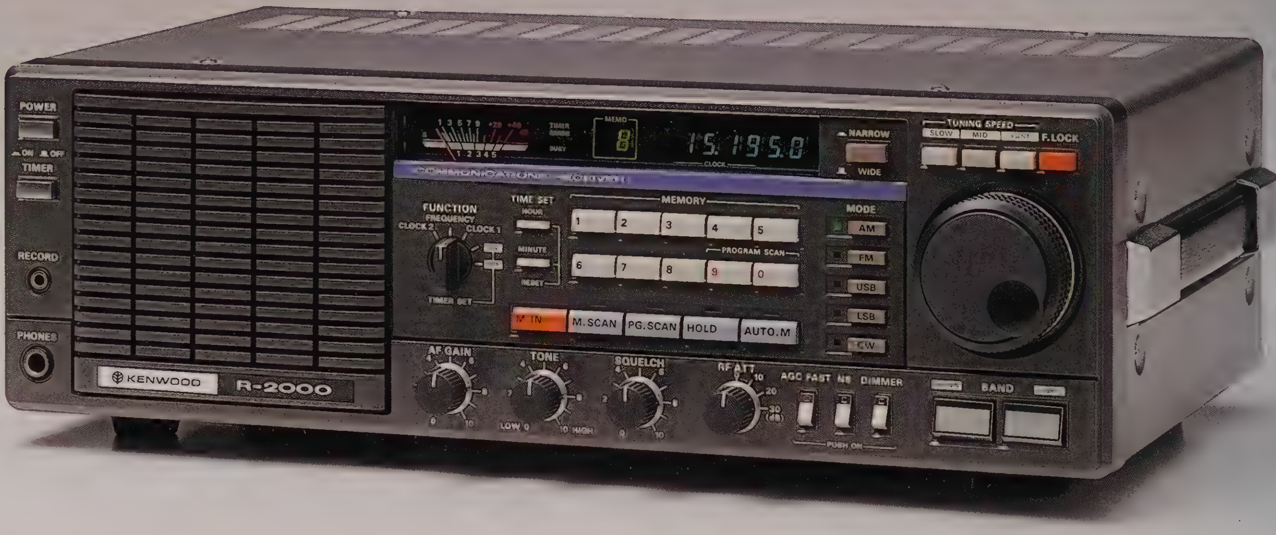
YK-88C: *500Hz CW Filter*

YK-88CN: *270Hz CW Filter*

YK-88A: *6kHz AM Filter*

R-2000

COMMUNICATIONS RECEIVER

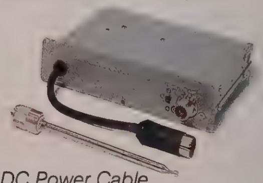


The R-2000 is an innovative all-mode SSB, CW, AM, FM receiver that covers 150kHz—30MHz. With an optional VC-10 VHF converter unit, coverage of the 118—174MHz frequency range is possible.
New microprocessor controlled operating features and an "UP" conversion PLL circuit assure maximum flexibility and ease of operation.

- **Covers 150kHz—30MHz in 30 bands**
  Use of an innovative UP-conversion digitally controlled PLL circuit provides maximum ease of operation and superior performance.
- **Optional 118—174MHz coverage**
  Through use of innovative microprocesor technology, frequency, band, and mode data of stations in the 118—174MHz range may be tuned, displayed, stored in memory, recalled and scanned.
- **All modes : SSB, CW, AM, and FM**
  Modes of operation include SSB, CW, AM, and FM, combined with a wide frequency coverage.
- **Digital VFO's feature excellent stability**
  - Use of 50Hz step digital VFO's, results in superior frequency accuracy and stability.
  - Tuning speed switches allow changing the size of the tuning step for efficient operation (50Hz/500Hz/5kHz).
- **Ten memories store frequency, band, and mode data**
  Each of the ten memory frequencies may be tuned by the VFO, oprating as ten built-in digital VFO s. All information on frequency, band, and mode is stored in memory assuring ease of operation.
- **Lithium battery memory back-up**
  Memory and VFO information are backed-up. (estimated 5 year life).
- **Memory scan**
  Scans all memory channels, or may be user programmed to scan specific memory channels.
- **Programmable band scan**
  Scans automatically within the programmed bandwidth.
- **High performance receiver circuit**
  Designed to exhibit communications receiver levels of performance in sensitivity, selectivity, and stability.
- **7-digit fluorescent tube digital display (100Hz resolution)**
  Indicates frequency (or time), as well as selected memory channel number.
- **Dual 24-hour quartz clocks, with timer**
  Ability to program two different time zones, such as local time and GMT.
- **Three built-in IF filters with narrow-wide selector switch (CW filter optional : YG-455C 500Hz narrow)**
  In the AM mode, 6kHz wide or 2.7kHz narrow may be selected. In the SSB mode, 2.7kHz bandwidth is automatically selected.
- **Squelch circuit, all mode, built-in**
  Effective in suppressing background noise in any operating mode.

Optional Accessories

VC-10: *VHF Converter (118—174MHz) for the R-2000.*
**The VC-10 may not be available depending on the regulations of each specific country.*



DCK-1: *DC Power Cable*

HS-4/5/6/7: *Headphones*

AL-1/AL-2: *Lightning & Static Protector*

YG-455C: *500Hz CW Filter*

- **Noise blanker built-in**
  Effective in suppressing ignition and other pulse-type noise.
- **Large front mounted speaker**
- **Tone control**
- **RF step attenuator (0—10—20—30 dB)**
- **AGC switch**
  "S" meter with SINPO scale
- **High and low impedance antenna terminals**
- **100—240 VAC operation**
- **Optional 13.8VDC operation (using the optional DCK-1)**
- **Record output jack on front panel**
- **Remote terminal**
- **Muting terminal**

SPECIFICATIONS

	TS-940S	TS-930S	TS-440S	TS-430S	TS-830S
[GENERAL]					
Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30*, 20, 17*, 15, 12*, 10 meter Amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur band	160 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30*, 20, 17*, 15, 12*, 10 meter Amateur bands
Receiver Frequency Range	150kHz ~ 30MHz	150kHz ~ 30MHz	100kHz—30MHz	150kHz ~ 30MHz	
Mode	A3J (SSB) A1 (CW) F1 (FSK), F3 (FM), A3 (AM)	A3J (SSB), A1 (CW) F1 (FSK), A3 (AM)	A3J (J3E) (USB, LSB), A1 (A1A) (CW), F1 (F1B) (FSK), F3 (F3E) (FM), A3 (A3E) (AM).	A3J (SSB), A1 (CW), A3 (AM) F3 (FM) (optional accessory)	A3J (SSB), A1 (CW), A3 (AM)=TS-830M
Frequency Stability	$\pm 10 \times 10^{-6}$ (-10°C ~ $+50$°C)	—	Better than $\pm 10 \times 10^{-6}$	Better than $\pm 30 \times 10^{-6}$ (0°C ~ 50°C) Within ±200Hz from 1 to 60 minutes after turn on. Within ±30Hz any 30 minutes period thereafter.	Within 1kHz from 1 to 60 minutes after turn on. Within 100Hz any 30 minutes period thereafter.
Frequency Accuracy	$\pm 10 \times 10^{-6}$ (at normal temperature)	$\pm 10 \times 10^{-6}$ (at normal temperature)	Better than $\pm 10 \times 10^{-6}$ (-10°C ~ $+50$°C)	Better than $\pm 10 \times 10^{-6}$	
Antenna Impedance	50Ω (20 ~ 150Ω with AT-940 installed, transmission only)	50Ω (20 ~ 150Ω with the AT-930 installed, 80 ~ 10m Amateur bands only)	50Ω (20 ~ 150Ω with the antenna tuner nstalled, transmitter only)	50Ω	50Ω ~ 75Ω
Power Requirements	120/220/240V AC, 50/60Hz	120/220/240V AC, 50/60Hz	12.0 to 16.0 VDC (standard 13.8V)	12.0 to 16.0VDC (13.8V nominal)	120/220/240V AC, 50/60Hz
Power Consumption	Max. transmit 510W Receive (no signal) 80W	Max. transmit 510W Receive (no signal) 80W	Max. Transmit 20A, Receive (no signal) 19.A	Transmit 20A approx. Receive 1.2A approx.	Transmit 295W Receiver 32W (with heater off)
Dimensions mm (inch) (Projections not included)	401 (15.79) W × 141 (15.55) H × 350 (13.78) D	374 (14.7) W × 141 (15.55) H × 350 (13.78) D	270 (10.63) W × 96 (3.78)H × 313 (12.32) D	270 (10.6) W × 96 (3.8) H × 275 (10.8) D	333 (13.3) W × 133 (5.3) H × 333 (13.3) D
Weight	18.5kg (40.78 lbs.) approx. 20kg (44.09 lbs.) approx. (with AT-940)	16.8kg (37.0 lbs.) approx. 18.5kg (40.8 lbs.) approx. (with AT-930)	6.3kg (13.89lbs.) approx. 7.3kg (16.09lbs.) approx. (with AT-440)	6.5kg (14.3 lbs.)	13.3kg (29.8 lbs.)
[TRANSMITTER]					
Final Power Input	SSB/CW/FSK/FM = 250W PEP AM = 140W	SSB/CW/FSK = 250W PEP AM = 80W	SSB/CW/FM/AFSK = 200W, AM = 110W	SSB = 250W PEP, CW = 200W PEP, AM = 60W FM = 120W (10-m)	SSB = 220W PEP, CW = 180W DC AM = 80W DC (TS-830M)
Modulation	SSB = Balanced Modulation FM = Reactance Modulation AM = Low Level Modulation	SSB = Balanced Modulation AM = Low Level Modulation	SSB = Balanced Modulation FM = Reactance Modulation AM = Low Level Modulation	SSB = Balanced Modulation AM = Low Level Modulation FM = Variable Reactance Direct Shift	SSB = Balanced Modulation AM = Low Level Modulation
FM Maximum Frequency Deviation	±5kHz	—	±5kHz	±5kHz (with FM-430)	—
FSK Shift Width	170Hz	170Hz	—	—	—
Carrier Suppression	Less than −40dB	Less than −40dB	Less than −40dB (Modulation frequency: 1.5kHz)	Less than −40dB	Less than −40dB
Spurious Response	Less than −40dB (CW)	—	Less than −40dB (CW)	—	—
Unwanted Sideband Suppression	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB (Modulation frequency: 1.5kHz)	Better than 50dB	Better than 60dB
Third Harmonic Intermodulation Distortion	Better than −37dB (at 14.2kHz) (based on single tone output)	−31dB	Better than −26dB	—	—
Microphone Impedance	500Ω ~ 50kΩ	500Ω or 50kΩ (connector switchable)	500Ω ~ 50kΩ	500Ω ~ 50kΩ	500Ω ~ 50kΩ
Frequency Response (SSB)	400 ~ 2600Hz (−6dB)	400 ~ 2600kHz (−6dB)	400 ~ 2600kHz (−6dB) (SSB)	400 ~ 2600Hz (−6dB)	400 ~ 2600Hz (−6dB)
Harmonic Content	—	—	—	Less than −40dB	—
[RECEIVER]					
Circuitry	SSB/CW/AM/FSK = Quadruple Conversion System FM = Triple Conversion System	Quadruple Conversion System	Triple conversion system	SSB/AM = Double Conversion Superheterodyne FM = Triple conversion Superheterodyne	Double Conversion Superheterodyne
Intermediate Frequency	1st IF 45.05MHz, 2nd IF 8.83MHz, 3rd IF 455kHz, 4th IF 100kHz	1st IF 44.93MHz, 2nd IF 8.83MHz, 3rd IF 455kHz, 4th IF 100kHz	1st IF = 45.05MHz, 2nd IF = 8.83MHz, 3rd IF = 455kHz	1st IF = 48.055MHz, 2nd IF = 8.83MHz, 3rd IF = 455kHz (only FM)	1st IF = 8.83MHz 2nd IF = 455kHz
Sensitivity [at 10dB (S+N/N)]	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.2μV (1.8 ~ 30MHz) AM: Less than 10μV (150 ~ 500kHz) Less than 32μV (500kHz ~ 1.8MHz) Less than 2μV (1.8MHz ~ 30MHz) FM (SINAD 12dB): Less than 0.5μV (1.8 ~ 30MHz)	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.25μV (1.8 ~ 30MHz) AM: Less than 10μV (150 ~ 500kHz) Less than 32μV (500kHz ~ 1.8MHz) Less than 2μV (1.8MHz ~ 30MHz)	SSB/CW/FSK: Less than 2.5μV (100 ~ 150kHz) Less than 1μV (150kHz ~ 500kHz) Less than 4μV (500kHz ~ 1.6MHz) Less than 0.25μV (1.6 ~ 30MHz) AM: Less than 25μV(100 ~ 150kHz) Less than 13μV(150kHz ~ 500kHz) Less than 40μV(500kHz ~ 1.6MHz) Less than 2.5μV(1.6 ~ 30MHz) FM: (SINAD 12dB): Less than 0.7μV(1.6 ~ 30MHz)	SSB/SW/FSK: Less than 1μV (150 ~ 500kHz) Less than 4μV (500kHz ~ 1.8MHz) Less than 0.25μV (1.8 ~ 30MHz) AM: Less than 13μV (150 ~ 500kHz) Less than 40μV (500kHz ~ 1.8MHz) Less than 2.5μV (1.8 ~ 30MHz) FM (S/N = 26dB)*: Less than 1μV (1.8 ~ 30MHz) FM (SINAD 12dB)*: Less than 0.4μV (1.8 ~ 30MHz) *with FM-430	SSB/CW = 0.25μV AM (TS-830M) = 2μV
Squelch Sensitivity	Less than −10dBμ (0.32μV)	—	SSB/CW/FM/AFSK = Less than 20μV (100 ~ 150kHz, 0.5 ~ 1.6MHz) Less than 10μV(150 ~ 500kHz) Less than 2μV(1.6 ~ 30MHz) FM = Less than 0.32μV(1.6 ~ 30MHz)	—	—
Image Ratio	More than 80dB (1.8 ~ 30MHz)	More than 80dB (1.8 ~ 30MHz)	More than 70dB(1.6 ~ 30MHz) More than 50dB(100kHz ~ 1.6MHz)	More than 70dB (1.8 ~ 30MHz) More than 50dB (FM = 3rd image ratio)	More than 60dB
IF Rejection	More than 70dB (1.8 ~ 30MHz)	More than 70dB (1.8 ~ 30MHz)	More than 70dB (1.6 ~ 30MHz) More than 50dB(100kHz ~ 1.6MHz)	More than 70dB (1.8 ~ 30MHz)	More than 80dB
Selectivity	SSB, CW, AM (narrow), FSK: 2.4kHz (−6dB), 3.6kHz (−60dB) AM (wide): 6kHz (−6dB), 15kHz (−50dB) FM: 12kHz (−6dB), 22kHz (−60dB)	SSB, CW(W), FSK(W), AM(N): 2.7kHz (−6dB), 4kHz (−60dB) AM(W): 6kHz (−6dB), 18kHz (−50dB)	SSB/CW/FSK = 2.2kHz (−6dB) 4.4kHz (−60dB) AM = 6kHz (−6dB) 18kHz (−50dB) FM = 12kHz (−6dB) 25kHz (−50dB)	SSB/CW; 2.4kHz (−6dB), 4.4kHz (−60dB), AM (with YK-88A): 6kHz (−6dB), 12kHz (−60dB) FM (with FM-430): 15kHz (−6dB), 32kHz (−60dB)	SSB, CW(W): 2.4kHz (−6dB), 3.6kHz (−60dB) AM (TS-830M): 6kHz (−6dB), 11kHz (−60dB)
Variable Frequency Range	SSB slope tuning: High-cut = more than 1500Hz Low-cut = more than 700Hz CW VBT = 600Hz ~ 2.4kHz (continuous)	SSB slope tuning: High-cut = more than 1500kHz Low-cut = more than 700Hz CW VBT = 600Hz ~ 2.4kHz (continuous)		—	VBT SSB = 500Hz ~ 2.4kHz (continuous) AM = 4.5kHz ~ 6kHz (continuous)
RIT/XIT Variable Range	±9.99kHz	RIT: ±9.99kHz	More than ±1kHz	RIT: More than ±1kHz	RIT: More than ± 1.5kHz
Notch Filter Attenuation	More than 40dB at 1.5kHz	More than 40dB at 1.5kHz	More than 20dB (Audio frequency 1.5kHz)	More than 40dB	More than 40dB
Audio Output Power	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)	1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)
Audio Output Impedance	4 ~ 16Ω	4 ~ 16Ω	4 ~ 16Ω	4 ~ 16Ω	8 ~ 16Ω

	TS-530SP	TS-670
[GENERAL]		
Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	40, 15, 10, 6 meter Amateur bands
Receiver Frequency Range		500kHz ~ 30MHz*, 50 ~ 54MHz
Mode	A3J (SSB), A1 (CW)	A3J (SSB), A1 (CW), A3 (AM) [F3 (FM) = optional]
Frequency Stability	Within 1kHz from 1 to 60 minutes after turn on. Within ±100Hz any 30 minutes period thereafter	Better than $\pm 30\times10^{-6}$ (0°C ~ 50°C) Within ±300Hz from 1 to 60 minutes after turn on Within 100Hz any 30 minutes period thereafter
Frequency Accuracy		Better than $\pm 10\times10^{-6}$, $\pm 30\times10^{-6}$ (0°C ~ +50°C)
Antenna Impedance	50 ~ 75Ω	50Ω
Power Requirements	120/220/240V AC, 50/60Hz	12.0 to 16.0VDC (13.8V nominal)
Power Consumption	Transmit 295W Receive 27W (with heater off)	Transmit: 4A approx. Receive (no signal): 1.1A approx.
Dimensions mm (inch) (Projections not included)	333 (13.3) W × 133 (5.3) H × 333 (13.3) D	270 (10.6) W × 9.6 (3.8) H × 260 (10.2) D
Weight	12.8kg (28.2 lbs.)	5.4kg (11.9 lbs.)
		*With GC-10 (Option)
[TRANSMITTER]		
Final Power Input	SSB = 220W PEP, CW = 180W DC	SSB/CW/(FM) = 10W, AM = 4W
Modulation	SSB = Balanced Modulation	SSB = Balanced Modulation AM = Low level Modulation FM = Reactance Modulation
FM Maximum Frequency Deviation	—	±5kHz (with FM-430)
FSK Shift Width	—	—
Carrier Suppression	Less than −40dB	Less than −40dB
Spurious Response	—	—
Unwanted Sideband Suppression	Better than 50dB	Better than 50dB
Third Harmonic Intermodulation Distortion	—	—
Microphone Impedance	—	500Ω ~ 50kΩ
Frequency Response (SSB)	400 ~ 2600Hz (−6dB)	400 ~ 2600Hz (−6dB)
Harmonic Content	Less than −40dB	Less than −40dB (40, 15, 10-m) Less than −60dB (6-m)
[RECEIVER]		
Circuitry	Single Conversion Superheterodyne	SSB/CW/AM = Single Conversion Superheterodyne FM = Double Conversion Superheterodyne
Intermediate Frequency	IF = 8.83MHz	SSB/CW/AM = 8.83MHz FM = 1st IF 8.83MHz, 2nd IF 455kHz
Sensitivity [at 10dB (S + N/N)]	SSB/CW = 0.25μV	SSB/CW: Less than 0.25μV AM: Less than 2μV (with YK-88A) FM: 12dB SINAD Less than 0.4μV
Squelch Sensitivity	—	SSB/CW/AM = Less than 3.2μV FM = Less than 0.32μV (10-m, 6-m)
Image Ratio	More than 60dB	More than 50dB
IF Rejection	More than 70dB	More than 50dB
Selectivity	SSB, CW(W): 2.4kHz (−6dB), 4.2kHz (−60dB)	SSB/CW: 2.5kHz (−6dB), 6kHz (−60dB) *AM = 6kHz (−6dB), 11kHz (−60dB) **FM = 12kHz (−6dB), 22kHz (−60dB) *with YK-88A, **with FM-430
Variable Frequency Range	—	—
RIT/XIT Variable Range	RIT More than ±1.5kHz	RIT: More than ±1.2kHz
Notch Filter Attenuation	More than 40dB	—
Audio Output Power	1.5W (8Ω at 10% distortion)	More than 1.5W (8Ω at 10% distortion)
Audio Output Impedance	8 ~ 16Ω	8 ~ 16Ω

	R-2000	R-1000
Frequency Range	150kHz ~ 30MHz 2 ~ 30MHz (Australia)	200kHz ~ 30MHz
Mode	AM, FM, SSB, CW	AM, SSB, CW
Sensitivity .... SSB/CW/AM S + N/N = 10dB FM: S + N/N = 20dB	SSB/CW: Less than 2μV (150kHz ~ 2MHz) Less than 0.4μV (2 ~ 30MHz) Less than 1μV (118 ~ 174MHz) AM: Less than 20μV (150kHz ~ 2MHz) Less than 4μV (2 ~ 30MHz) Less than 10μV (118 ~ 174MHz) FM: Less than 1μV (2 ~ 30MHz) Less than 2μV (118 ~ 174MHz)	SSB/CW: Less than 5μV (200kHz ~ 2MHz) Less than 0.5μV (2 ~ 30MHz) AM: Less than 50μV (20kHz ~ 2MHz) Less than 5μV (2 ~ 30MHz)
Selectivity	AM (W): 6kHz (−6dB), 18kHz (−50dB) AM (N): 2.7kHz (−6dB), 5kHz (−50dB) SSB/CW: 2.7kHz (−6dB), 5kHz (−50dB) FM: 15kHz (−6dB), 30kHz (−50dB)	AM (W): 12kHz (−6dB), 25kHz (−50dB) AM (N): 6kHz (−6dB), 18kHz (−50dB) SSB/CW: 2.7kHz (−6dB), 5kHz (−60dB)
Image Ratio	More than 70dB	More than 60dB
IF Rejection	More than 70dB	More than 70dB
Frequency Stability	Within ±300Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	With in ±2kHz from 1 to 60 minutes after turn-on. Within ±300Hz any 30 minu period thereafter.
Frequency Accuracy	$\pm 10\times10^{-6}$ or better (at normal temperature)	
Squelch Sensitivity	AM/SSB/CW = Less than 3.12μV [5μV] FM = Less than 0.5μV [1μV]	—
Audio Load Impedance	4 ~ 16Ω	4 ~ 16Ω
Audio Output Power	1.5W (8Ω load, 10% distortion)	1.5W (8Ω load, 10% distortio
Antenna Impedance	50Ω/500Ω	50Ω/1kΩ
Power Consumption	14W AC [16W], (no signal) 13.8V DC, 0.6A [0.8A] (no signal)	20W AC
Power Requirement	100/120/220/240V AC, 50/60Hz 13.8V DC (with optional DCK-1)	100/120/220/240V AC, 50/60
Dimensions mm (inch) ..... (Projection not included)	378 (14.8) W × 115 (4.5) H × 210 (8.3) D	300 (11.8) W × 115 (4.53) H × 218 (8.58) D
Weight	5.5kg (12.1 lbs.) approx. [ ]: with VC-10 (VHF converter unit)	5.5kg (12.1 lbs.)

	TR-50
[GENERAL]	
Frequency Range	1260 ~ 1300MHz
Mode	F3 (FM)
Operating Voltage	13.8V DC +15%, −25%
Power Requirement	13.8V DC
Current Drain	Transmit: 850mA approx. Receive (no signal) 180mA approx.
Operating Temperature	−20°C ~ +50°C
Antenna Impedance	50Ω
Frequency Tolerance	Less than $\pm 5\times10^{-6}$ (−10°C ~ +50°C)
Dimensions mm (inch) (Projections not included)	123 (4.84) W × 51 (3.01) H × 192 (7.56) D
Weight	1.2kg (2.65 lbs.) with battery and antenna
[TRANSMITTER]	
RF Output Power	1W
Modulation	Reactance Modulation
Maximum Frequency Deviation	±5kHz
Spurious Radiation	Less than −40dB
[RECEIVER]	
Circuitry	Triple Conversion Superheterodyne
Intermediate Frequency	1st IF 139MHz, 2nd IF 20.935MHz, 3rd IF 455kHz
Sensitivity	12dB SINAD Less than 0.3μV
Selectivity	More than 15kHz (−6dB) Less than 30kHz (−40dB)
Spurious Response	Less than −40dB
Squelch Sensitivity	Less than 0.25μV
Audio Output Power	More than 1W (8Ω at 10% distortion)

[GENERAL]
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[TRANSMITTER]
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[RECEIVER]
Circuitry ....

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Sensitivity ......
Selectivity ......

Spurious Respons
Squelch Sensitivity
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Audio Output Leve

	TR-2600A	TR-3600A	TH-21A/AT	TH-31A/AT	TH-41A/AT
[GENERAL]					
Frequency Range	144 ~ 148MHz*	U.S.A. *M_1 440 ~ 450MHz **M_2 430 ~ 440MHz	144 ~ 148MHz	220 ~ 225MHz	U.S.A. *M_1 440 ~ 450MHz **M_2 430 ~ 440MHz
Mode	F3, F2 in DCS mode (FM)	F3, F2 in DCS mode (FM)	F3 (FM)	F3 (FM)	F3 (FM)
Operating Voltage	8.4V DC ±25% (negative grounding)	8.4V DC ±25% (negative grounding)	5.8 ~ 10.0V DC	5.8 ~ 10.0V DC	5.8 ~ 10.0V DC
Power Requirement	8.4V, 450mAH (Ni-Cd battery pack)	8.4V, 450mAH (Ni-Cd battery pack)	7.2V DC	7.2V DC	7.2V DC
Current Drain	Transmit (at 8.4V): HI less than 800mA LOW less than 400mA Receive (no signal) approx. 35mA	Transmit (at 8.4V): HI less than 750mA LOW less than 400mA Receive (no signal) approx. 35mA	Transmit: HI less than 600mA LOW approx. 300mA Receive (no signal) approx. 28mA	Transmit: HI less than 650mA LOW approx. 350mA Receive (no signal) approx. 30mA	Transmit (at 8.4V): HI Less than 650mA LOW approx. 300mA Receive (no signal) approx. 30mA
Operating Temperature	−20°C ~ +50°C	−20°C ~ +50°C	−20°C ~ +50°C	−20°C ~ +50°C	−20°C ~ +50°C
Antenna Impedance	50Ω	50Ω	50Ω	50Ω	50Ω
Frequency Tolerance	Less than ±20 × 10^{-6} (−20°C ~ +50°C)	Less than ±20 × 10^{-6} (−20°C ~ +50°C)	Less than ±20 × 10^{-6} (−10°C ~ +50°C)	Less than ±20 × 10^{-6} (−10°C ~ +50°C)	Less than ±20 × 10^{-6} (−10°C ~ +50°C)
Dimensions mm (inch) (Projections not included)	With Ni-Cd battery: 66 (2.6) W × 168 (6.7) H × 39.5 (1.6) D	With Ni-Cd battery: 66 (2.6) W × 168 (6.7) H × 39.5 (1.6) D	57 (2.24) W × 120 (4.72) H × 28 (1.10) D	57 (2.24) W × 120 (4.72) H × 28 (1.10) D	57 (2.24) W × 120 (4.72) H × 28 (1.10) D
Weight	With Ni-Cd battery: 520g (1.15 lbs.) *Frequency range may be expanded for certain MARS and CAP frequencies. (U.S.A. version only)	With Ni-Cd battery: 520g (1.15 lbs.) *M_1: UHF High Band Territory **M_2: UHF Low Band Territory	290g (0.64 lbs.) approx. with battery and antenna	290g (0.64 lbs.) approx. with battery and antenna	290g (0.64 lbs.) approx. with battery and antenna *M_1 UHF High-Band Territory **M_2 UHF Low-Band Territory
[TRANSMITTER]					
RF Output Power	HI = 2.5W LO = 0.3W approx.	HI = 1.5W LO = 0.3W approx.	HI = 1.0W LO = 150mW approx.	HI = 1.0W LO = 150mW approx.	HI = 1.0W LO = 150mW approx.
Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation	Reactance Modulation
Maximum Frequency Deviation	±5kHz	±5kHz	±5kHz	±5kHz	±5kHz
Spurious Radiation	Less than −60dB	Less than −60dB	Less than −60dB	Less than −60dB	Less than −60dB
[RECEIVER]					
Circuitry	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne
Intermediate Frequency	1st IF 10.7MHz, 2nd IF 455kHz	1st IF 21.6MHz, 2nd IF 455kHz	1st IF 16.3MHz, 2nd IF 455kHz	1st IF 16.9MHz, 2nd IF 455kHz	1st IF 21.6MHz, 2nd IF 455kHz
Sensitivity	12dB SINAD Less than 0.25μV	12dB SINAD Less than 0.25μV	12dB SINAD Less than 0.25μV	12dB SINAD Less than 0.25μV	12dB SINAD Less than 0.25μV
Selectivity	More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 12kHz (−6dB), Less than 28kHz (−40dB)	More than 12kHz (−6dB), Less than 28kHz (−40dB)	More than 15kHz (−6dB), Less than 30kHz (−40dB)
Spurious Response	Less than −50dB	Less than −40dB	Less than −40dB	Less than −40dB	Less than −40dB
Squelch Sensitivity	Less than 0.2μV (threshold)	Less than 0.2μV (threshold)	Less than 0.25μV	Less than 0.25μV	Less than 0.25μV
Audio Output Power	More than 400mW (8Ω load at 10% distortion)	More than 400mW (8Ω load at 10% distortion)	More than 250mW (8Ω load at 10% distortion)	More than 250mW (8Ω load at 10% distortion)	More than 250mW (8Ω load at 10% distortion)

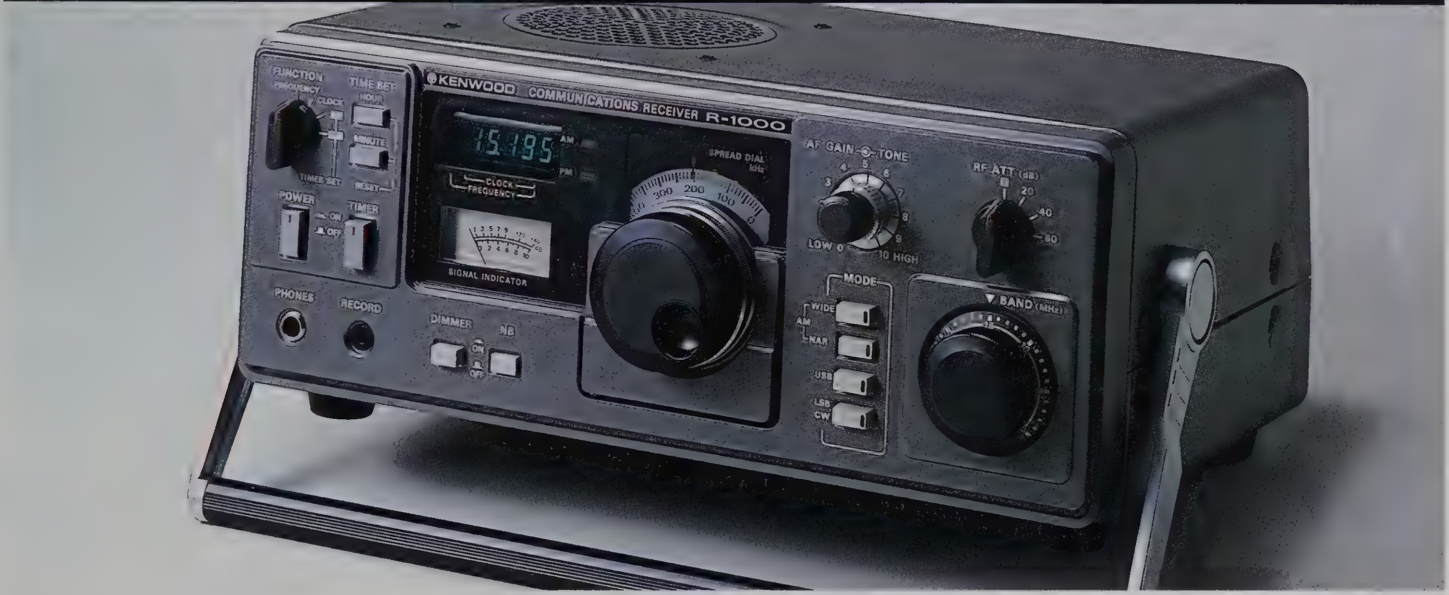
TM-211A	TM-411A	TM-201B	TM-401B	TW-4000A	TM-2570A/2550A/2530A
144 ~ 148MHz	USA, *M_1 438 ~ 450MHz **M_2 430 ~ 440MHz	144 ~ 148MHz	USA, *M_1 440—450MHz **M_2 430—440MHz	VHF 144 ~ 148MHz UHF USA, *M_1 440 ~ 450MHz **M_2 430 ~ 440MHz	144 ~ 148MHz
F3, F2 = in DCS mode (FM)	F3, F2 = in DCS mode (FM)	F3 (FM)	F3 (FM)	F3 (FM)	F3, F2 = in DCL mode (FM)
13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)	13.8V DC ±15% (Negative grounding)
Transmit: HI = 5.6A LO = 2.5A Receive (no signal): Less than 0.5A	Transmit: HI = 6.9A LO = 3.0A Receive (no signal): Less than 0.5A	Transmit: HI = 9.5A LO = 3.0A Receive (no signal): Less than 0.5A	Transmit: HI = 6.9A LO = 3.0A Receive (no signal): Less than 0.5A	Transmit (max): 7.5A Receive (no signal): 0.6A	Transmit: HI = 16A(TM-2570A), 9.5A (TM-2550A), 6.5A(TM-2530A) Receive (no signal): 0.8A(TM-2570A), 0.6A(TM-2550A/30A)
−20°C ~ +60°C	−20°C ~ +50°C	−20°C ~ +50°C	−20°C ~ +50°C	−20°C ~ +50°C	−20° ~ +50°C
50Ω	50Ω	50Ω	50Ω	50Ω (VHF/UHF)	50Ω
500 ~ 600Ω	500 ~ 600Ω	500Ω	500Ω	500Ω	500 ~ 600Ω
8Ω	8Ω	8Ω	8Ω	8Ω	8Ω
Less than ±15 ppm (−10°C ~ +50°C)	Less than ±15 ppm (−10°C ~ +50°C)				
140 (5.51) W × 40 (1.57) H × 197 (7.76) D	140 (5.51) W × 40 (1.57) H × 197 (7.76) D	141 (5.6) W × 39.5 (1.6) H × 200 (7.9) D	141 (5.6) W × 39.5 (1.6) H × 183 (7.3) D	161 (6.34) W × 60 (2.36) H × 217 (8.54) D	180(7.09)W × 60(2.36)H × 250(9.84) D/215(8.46)D/195(7.68)D
1.25kg (2.8 lbs.)	1.25kg (2.8 lbs.) *M_1 UHF High-Band Territory **M_2 UHF Low-Band Territory	1.2kg (2.6 lbs.)	1.25kg (2.8 lbs.) *M_1 UHF High-Band Territory **M_2 UHF Low-Band Territory	2.0kg (4.4 lbs.) *M_1 UHF High-Band Territory **M_2 UHF Low-Band Territory	2.35kg(5.18 lbs.)/2.0kg (4.41 lbs.)/1.8kg(3.97 lbs.)
HI: 25W LO: 5W approx.	HI: 25W LO: 5W approx.	HI: 45W LO: 5W approx.	HI: 25W LO: 5W approx.	HI: 25W LO: 5W	HI = 70W(TM-2570A), 45W(TM-2550A), 25W(TM-2530A), LO = 5W approx.
Reactance Modulation	Reactance Modulation	Reactance Modualtion	Reactance Modualtion	Reactance Modulation	Reactance Modulation
±5kHz	±5kHz	±5kHz	±5kHz	±5kHz	±5kHz
HI: Less than −70dB LO: Less than −60dB	HI: Less than −60dB LO: Less than −60dB	HI: Less than −70dB LO: Less than −60dB	HI: Less than −60dB LO: Less than −60dB	HI: Less than −70dB LO: Less than −60dB	Less than −60dB
Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3% (300 ~ 3000Hz) (Modulation degree 60%)	Less than 3%	Less than 3% (300 ~ 3000Hz)
Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne
1st IF 10.695MHz 2nd IF 455kHz	1st IF 21.6MHz 2nd IF 455kHz	1st IF 10.695MHz 2nd IF 455kHz	1st IF 21.6MHz 2nd IF 455kHz	1st IF 30.865MHz 2nd IF 455kHz	1st IF 10.695MHz 2nd IF 455kHz
12dB SINAD Less than 0.18μV	12dB SINAD Less than 0.18μV	12dB SINAD Less than 0.22μV	12dB... 0.2μV	12dB SINAD Less than 0.17μV	12dB SINAD Less than 0.25μV
More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 12kHz (−6dB), Less than 24kHz (−60dB)	More than 14kHz (−6dB), Less than 30kHz (−60dB)	More than 12kHz (−6dB), Less than 25kHz (−60dB)
Less than −70dB (except IF/2)	Less than −65dB (except IF/2)	Less than −70dB (except IF/2)	Less than −70dB (except IF/2)	Less than −70dB (except IF/2)	Less than −70dB (except IF/2)
Less than 0.15μV	Less than 0.15μV	Less than 0.16μV	Less than 0.16μV	Less than 0.1μV	Less than 0.125μV
Less than 0.18μV	Less than 0.18μV	Less than 0.2μV	Less than 0.2μV		Less than 0.2μV
More than 2W (5% distortion)	More than 2W (5% distortion)	More than 2W (5% distortion)	More than 2W (5% distortion)	More than 2.0W (at 8Ω 10% distortion)	More than 1.5W (at 8Ω 5% distortion)

	TS-711A	TS-811A/B	TR-9130	TR-9500	TR-751A
[GENERAL]					
Frequency Range	144∼148MHz	TS-811A 430∼450MHz TS-811B 430∼440MHz	144∼148MHz	430∼440MHz	144∼148MHz
Mode	A3J (SSB), A1 (CW) F3/F2=with DCS function (FM)	A3J (SSB), A1 (CW) F3/F2=with DCS function (FM)	A3J (SSB), A1 (CW), F3 (FM)	A3J (SSB), A1 (CW), F3 (FM)	A3J (SSB), A1 (CW) F3/F2=with DCL system (FM)
Antenna Impedance	50Ω	50Ω	50Ω	50Ω	50Ω
Temperature Range	−10°C∼+50°C	−10°C∼+50°C	−20°C∼+60°C	−20°C∼+60°C	−20°C∼+60°C
Power Requirements	120/220/240V AC 50/60Hz 13.8V DC (12∼16V) Negative grounding	120/220/240V AC 50/60Hz 13.8V DC (12∼16V) Negative grounding	13.8V DC (±15%) Negative grounding	13.8V DC (±15%) Negative grounding	13.8V DC (±15%) Negative grounding
Power Consumption	Transmit: 170W AC, 6.5A (13.8V DC) Receive (no signal): 50W AC, 1.2A (13.8V DC)	Transmit: 220W AC, 8.0A (13.8V DC) (TS-811A) 240W AC, 8.5A (13.8V DC) (TS-811B) Receive (no signal): 50W AC, 1.3A (13.8V DC)	Transmit: HI 5.5A LOW 2.7A Receive (no signal): 0.7A	Transmit: 3.8A Receive (no signal): 0.7A	Transmit: HI Less than 6.0A Receive (no signal)=0.8A
Frequency Tolerance	SSB/CW=Less than ±3 PPM FM=Less than ±5 PPM	SSB/CW=Less than ±3 PPM (430∼440MHz) Less than ±5 PPM (440∼450MHz) FM=Less than ±5 PPM	SSB=Less than ±10 PPM FM=Less than ±20 PPM	Less than ±10 PPM	Less than ±15PPM (−20°C∼+60°C)
Frequency Stability	Within ±300Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	Within ±1200Hz (430∼440MHz) from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	Within ±500Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.	— —	Within ±400Hz from 1 to 60 minutes after turn-on. Within ±50Hz any 30 minutes period thereafter.
Microphone Impedance	500∼600Ω	500∼600Ω	500Ω	500Ω	500∼600Ω
Dimensions mm (inch) (Projections not included)	270 (10.6) W×96 (3.78) H ×260 (10.2) D	270 (10.6) W×96 (3.78) H ×260 (10.2) D	170 (6.8) W×68 (2.7) H ×241 (9.6) D	170 (6.8) W×68 (2.7) H ×241 (9.6) D	180 (7.09)W×60 (2.36)H ×195 (7.68)D
Weight	7.1kg (15.65 lbs.) approx.	7.1kg (15.65 lbs.) approx.	2.4kg (5.3 lbs.) approx.	2.7kg (5.9 lbs.) approx.	2.1kg (4.63lbs.) approx.
[TRANSMIT]					
RF Output Power	25W	25W	HI (SSB/CW/FM)=25W LOW (CW/FM)=5W approx.	SSB/CW/FM=10W	HI=25W LO=5W
Modulation	SSB=Balanced Modulation FM=Reactance Modulation	SSB=Balanced Modulation FM=Reactance Modulation	SSB=Balanced Modulation FM=Reactance Modulation	SSB=Balanced Modulation FM=Reactance Modulation	SSB=Balanced Modulation FM=Reactance Modulation
Spurious Radiation	Less than −60dB	Less than −60dB	HI=Less than −60dB LOW=Less than −53dB	Less than −60dB	Less than −60dB
Maximum Frequency Deviation	±5kHz	±5kHz	±5kHz	±5kHz	±5kHz
Carrier Suppression	Less than −40dB	Less than −40dB	Less than −40dB	Less than −40dB	Less than −40dB
Unwanted Sideband Suppression	Better than 40dB	Better than 40dB	Better than 40dB	Better than 40dB	Better than 40dB
Modulation Distortion	Less than 3% (300∼3000Hz) (FM modulation 60%)	Less than 3% (300∼3000Hz) (FM modulation 60%)	—	—	—
[RECEIVE]					
Circuitry	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	Double Conversion Superheterodyne	SSB/CW: Single Conversion Superheterodyne FM: Double Conversion Superheterodyne
Intermediate Frequency	1st IF 30.265MHz 2nd IF 10.695MHz (SSB/CW) 455kHz (FM)	1st IF 30.265MHz 2nd IF 10.695MHz (SSB/CW) 455kHz (FM)	1st IF 10.695MHz (SSB/CW/FM) 2nd IF 455kHz (FM)	1st IF 21.6MHz 2nd IF 8.83MHz (SSB/CW) 455kHz (FM)	1st IF 10.695MHz 2nd IF 455kHz (FM)
Sensitivity	SSB/CW=10dB S+N/N Less than 0.16μV FM=12dB SINAD Less than 0.22μV	SSB/CW=10dB S+N/N Less than 0.14μV (TS-811A) 0.13μV (TS-811B) FM=12dB SINAD Less than 0.22μV (TS-811A), 0.2μV (TS-811B)	SSB/CW=10dB S+N/N Less than 0.25μV FM=12dB SINAD Less than 0.25μV	SSB/CW=20dB S+N/N Less than 0.5μV FM=12dB SINAD Less than 0.25μV	SSB/CW=10dB S+N/N Less than 0.13μV FM=12dB SINAD Less than 0.2μV
Selectivity	SSB/CW= More than 2.2kHz (−6dB), Less than 4.8kHz (−60dB) FM=More than 12kHz (−6dB), Less than 24kHz (−60dB)	SSB/CW= More than 2.2kHz (−6dB), Less than 4.8kHz (−60dB) FM=More than 12kHz (−6dB), Less than 24kHz (−60dB)	SSB/CW= More than 2.2kHz (−6dB) Less than 4.8kHz (−60dB) FM=More than 12kHz (−6dB) Less than 24kHz (−60dB)	SSB/CW= More than 2.4kHz (−6dB), Less than 4.8kHz (−60dB) FM=More than 12kHz (−6dB), Less than 4.8kHz (−60dB)	SSB/CW= More than 2.2kHz (−6dB) Less than 4.8kHz (−60dB) FM=More than 12kHz (−6dB) Less than 24kHz (−60dB)
RIT Variable Range					More than ±1.2kHz
Spurious Response	Better than 70dB	Better than 60dB	Better than 70dB	Better than 60dB	Better than 70dB (except IF/2)
Squelch Sensitivity	Less than 0.16μV	Less than 0.16μV	Less than 0.16μV	Less than 0.2μV	Less than 0.1μV
Scan Stop Level	Less than 0.2μV	Less than 0.2μV	Less than 0.2μV	Less than 0.2μV	
Audio Output Power	More than 2.0W (5% distortion)	More than 2.0W (5% distortion)	More than 2.0W (8Ω at 10% distortion)	More than 2.0W (8Ω at 10% distortion)	More than 2.0W (8Ω at 5% distortion)
Audio Output Impedance	8Ω	8Ω	8Ω	8Ω	8Ω

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to advances in technology.
TRIO-KENWOOD reserves the right to add or delete models or products without notice to maintain its competitive position in the market.
Products included in this catalog are products that were a part of TRIO-KENWOOD's product line as of the date of this printing.

R-1000

COMMUNICATIONS RECEIVER


KENWOOD COMMUNICATIONS RECEIVER R-1000
FUNCTION
FREQUENCY
CLOCK
TIMER SET
TIME SET
HOUR
MINUTE
RESET
POWER
ON
OFF
TIMER
15.195
AM
PM
CLOCK
FREQUENCY
SIGNAL INDICATOR
SPREAD DIAL kHz
300
200
100
0
AF GAIN TONE
LOW
10 HIGH
RF ATT (dB)
20
40
60
MODE
WIDE
AM
NAR
USB
LSB
CW
BAND (MHz)
PHONES
RECORD
DIMMER
ON
OFF
NB

The R-1000 is a high class general coverage receiver covering 30 bands between 200kHz and 30MHz with a PLL synthesizer that incorporates a variety of KENWOOD's sophisticated electronic technology.

▪ PLL synthesizer covers 30 bands between 200kHz and 30MHz

The R-1000 is a high class general coverage receiver covering 30 bands from 200kHz to 30MHz with use of a highly reliable VFO at 1MHz step from LW (long wave) to SW (short wave).

▪ Simple operation

Both a digital display (1kHz resolution) and analog display (10kHz resolution) are provided with use of highly exact gear dial mechanism for easy reading.

▪ Refined style and compactness

An innovative style in a chic metallic gray case and front panel with ideal control assignment

▪ Large 4 inch (100mm) built-in speaker

Ideal frequency characteristics (enough for music as well), a wide range low distortion speaker is installed on the upper part of the cabinet.

▪ Built-in quartz digital clock with timer

A 12-hour type highly exact digital clock with AM or PM indication.

▪ Ideal 3-stage IF filters for received mode

Wide range for AM with emphasis on total quality, and DX reception. An IF filter is employed for narrow range for Amateur communications, SSB professional communications, etc. to meet every mode without interference.

▪ Built-in Noise Blanker

A NB is built-in to shut off ignition noise and a various pulse type noise.
The noise blanker is the type, which is usually used only in more expensive SSB transceivers. It is quite efficient for shutting off pulse type noise in RF circuits with no adverse effect on tonal quality.

▪ RF attenuator in antenna circuit

An attenuator of 20, 40 and 60dB is employed to protect the unit from damage by high input power (high power broadcasts, etc.)

▪ Changeable dial light intensity

A dimmer switch is installed to adjust the light intensity of the dial and S meter for easier reading at night.

▪ Tone control

Disired tonal quality is available, depending upon your taste and program.

▪ Recording terminal

Recording terminal, which is provided as standard levels for direct recording on most recorders, are installed on the front panel for easy and quick recording.

▪ Selectable AC power voltage (100, 120, 220 or 240V)

▪ Changeable antennas terminals

Wire antenna terminals for 200kHz to 2MHz. For 2MHz to 30MHz both wire antenna and doublet or loop antenna with use of coaxial cable. A desired antenna can be switched on.

▪ Accessory terminals

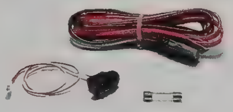
Relay circuit for timer and muting circuit are also used via output provisions.

Optional Accessories

AL-1/AL-2: *Lightning & Static Protector*

KENWOOD
AL-2

DCK-1: *DC Power Cable*

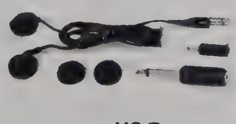


HS-4: *Headpnones (8Ω)*
HS-5: *Deluxe Headphones (12.5Ω)*
HS-6: *Small-size Headphones (16Ω)*
HS-7: *Micro Headphones (16Ω)*

HS-4

HS-5

HS-6



HS-7

TH-21AT·A/31AT·A/41AT·A

FM POCKET TRANSCEIVER

KENWOOD
144MHz FM TRANSCEIVER
TH-21AT

Exemplifying KENWOOD's use of the most advanced electronic technology, the TH-21AT/A, TH-31AT/A, and TH-41AT/A are ultra-compact, slim, and lightweight FM pocket/handheld transceivers. They feature high-impact molded cases, molded-in color, and are designed to pack maximum performance and operating convenience into a single compact package.

KENWOOD
144MHz FM TRANSCEIVER

■ **Ultra-compact, and lightweight**

Cabinet dimensions are only 57 (2.24)W × 120 (4.72)H × 28(1.1)D mm (inch), weighs only 290g (0.64lbs), including standard PB-21 battery and antenna.

■ **One watts RF output, with HI/LO power switch**

Allows operation at maximum power (1W), or at reduced power (150mW), for extended battery life.

■ **Expanded frequency coverage (TH-21A/AT)**

Covers 141.000 to 150.995MHz in 5kHz steps, includes certain MARS and CAP frequencies.

■ **Easy-to-operate, functional design**

Three digit thumbwheel frequency selection and handy top-mounted controls increase operating ease.

■ **Repeater offset switch**

TH-21AT/A: ±600kHz, simplex.
TH-31AT/A: −1.6MHz, reverse, simplex.
TH-41AT/A: ±5MHz, simplex.

■ **Rugged, high impact molded case**

The high impact case is scuff resistant, to retain its attractive styling.

■ **High performance receiver/transmitter specifications**

The TH-21AT/A, TH-31AT/A, and TH-41AT/A have been designed to provide the highest in receiver/transmitter circuit performance through the use of advanced technology in engineering design.

■ **Choice of standard or optional heavy duty batteries**

The heavy duty battery PB-21H greatly increases operating time, and switching to the low power position extends operating time even further.

■ **Optional Rapid Charger**

The BC-6 charges up to two battery packs (either the PB-21 or PB-21H) to almost 100% capacity in approximately one hour.

■ **Optional StubbyDuk Antenna**

■ **Available with 16-key auto-patch (TH-21AT, TH-31AT, and TH-41AT)**

■ **Broad selection of accessory items**

■ **QUICK-CHANGE battery case**

Optional Accessories

AJ-3: *Coaxial Cable Adaptor Thread-loc to BNC Female*
BC-2: *PB-21H Wall Charger*
BC-6: *Quick Battery Charger*
BT-2: *AAA Manganese/Alkaline Battery Case*
DC-21: *DC-DC Converter for Mobile Use*
EB-2: *External C Manganese/Alkaline Battery Case*
HMC-1: *Headset with VOX*
PB-21: *Ni-Cd Battery, 180mAh*
PB-21H: *Heavy Duty Ni-Cd Battery, 500mAh*
RA-6/7: *VHF/UHF Antennas*
RA-8A/9A/10A: *144/220/440MHz StubbyDuk*
SMC-30: *Speaker Microphone*
SC-8: *Soft Case with Belt Hook*
SC-8T: *Soft Case with Belt Hook 16-key Auto-Patch Version.*
TU-6: *CTCSS Tone Unit*

*Specifications are guaranteed for the 144—148MHz Amateur band only.

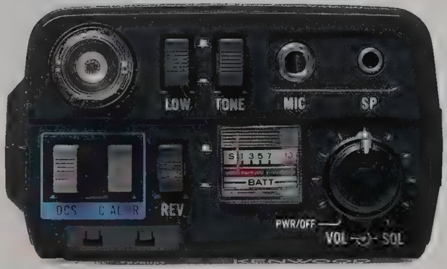
TR-2600A/3600A

2-m/70-cm FM HANDHELD TRANSCEIVER with DCS

KENWOOD
146.970
TR-2600A

The TR-2600A 2-m FM handheld transceiver and the TR-3600A 70-cm FM handheld transceiver have been designed placing special emphasis on compactness, superlative performance, ruggedness of construction, and incorporating the latest mechanical and electronic technology.

The TR-2600A/3600A offers the easiest operation in microprocessor-controlled transceivers.



■ Extended frequency coverage (TR-2600A)

Allows operation on most MARS and CAP frequencies. (Receive frequency range is 140—160MHz.)

*Specifications are guaranteed for the 144—148MHz Amateur band only.

■ HI/LOW power output selection

2.5 watts (TR-2600A) and 1.5 watts (TR-3600A) high power, 300mW low.

■ Keyboard frequency selection

■ DCS (Digital Code Squelch)

Allows the operator to program the transceiver to respond only to those transmissions that incorporate a preselected digital data signal.

■ Large LCD digital frequency readout

Easy to read in direct sunlight or in the dark with convenient dial light that also illuminates the top panel S-meter.

■ 10-channel frequency and repeater offset memory

10 channel memories, includes one for non-standard repeater offsets.

■ Scan functions

- **Memory scan plus programmable memory channel lock-out.**
  Scans only memory channels in which frequency data is stored. Programmable memory allows memory scan to skip selected memory channels.
- **Programmable automatic band scan**
  Scan steps of 5kHz or larger (10, 15, 20, 25kHz, etc.)
- **UP/DOWN manual scanning**
  UP/DOWN scanning proceeds in 5kHz steps.

■ Lithium battery memory back-up

Estimated life, 5 years.

■ Two "LOCK" switches

"F. LOCK (frequency lock)" and "TX STOP"

■ Built-in 16-key auto-patch encoder

All 16 keys provide telephone dual-tone multi-frequency modulation when pressed with the unit in the transmit mode. DTMF tones are monitored on the speaker.

■ Optional power sources

Using the optional MS-1 or ST-2 charger/power supplies, they may be operated simultaneously during the charging process.

■ Compact size and lightweight

Measures only 66 (2.60)W × 168 (6.61)H × 40 (1.57)D, mm (inch), with a weight of only 520g (1.15lbs), including the Ni-Cd battery pack.

■ Built-in dip-switch programmable sub-audible tone encoder (optional)

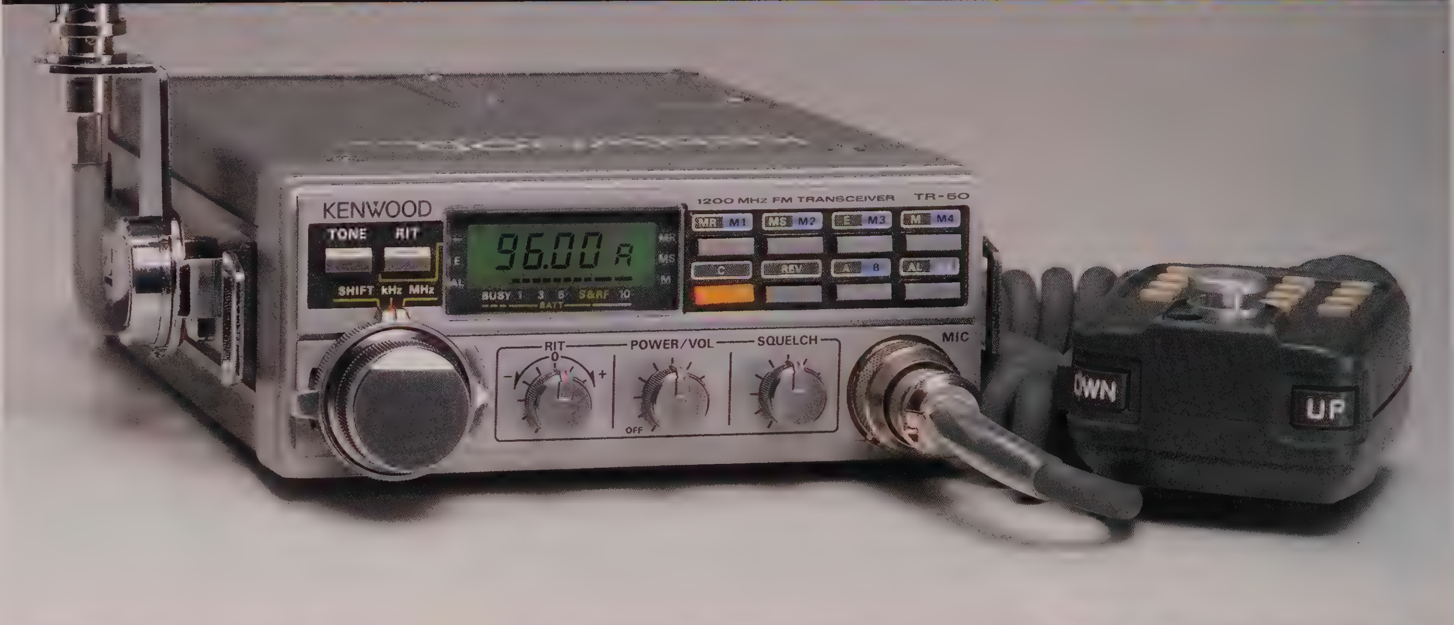
Optional Accessories

AX-2: *Shoulder Belt with Ground Plane Antenna Base*
BT-3: *AA Manganese/Alkaline Battery Case*
CD-10: *Call Sign Display*
***option AC-10:** *AC adaptor*
DC-26: *DC-DC Converter*
EB-3: *External C Manganese/Alkaline Battery Case*
HMC-1: *Headset with VOX*
HS-8: *Micro Headphone*
LH-3: *Deluxe Leather Case*
MS-1: *Mobile Stand/charger*
PB-26: *Ni-Cd Battery*
RA-2/3/4/5: *Antennas*
RA-8B/10B: *144/430MHz StubbyDuk*
SC-9: *Soft Case with Belt Hook*
SMC-1: *Speaker Microphone*
ST-2: *Base Stand/charger*
TU-35B: *Programmable Tone Encoder*
VB-2530: *2-m 25W RF Power Amplifier*

■ Reverse operation
■ "SLIDE-LOC" battery pack
■ High efficiency, quality speaker

TR-50

1200MHz FM PORTABLE TRANSCEIVER



The TR-50 is a multi-purpose, portable FM transceiver, designed for use in the 1200MHz Amateur band. New microprocessor controlled operating features assure maximum flexibility and ease of operation.

- **Multi-purpose portable type transceiver with an adjustable 1/4 wave sleeve antenna**

Designed to contain the battery and antenna, all in one compact package. An 8 position adjustable antenna mounting bracket may be adjusted in 30 degree steps.

- **Frequency range covers 1260 ~ 1300MHz**
- **1 watt output**
- **Easy repeater operation**

●**TONE switch**
Activates the optional TU-6 CTCSS sub-audible-tone encoder.

●**SHIFT switch**
– 20MHz or simplex operation.

●**Repeater reverse switch**
Allows the operator to quickly check the input frequency of repeater so that he may determine if simplex communications would be possible.

●**Odd split on memory channel 5.**

- **Micoprocessor control of various frequency functions**

(1) 5 memory channels
Memory channel 1 is the priority alert channel.

(2) Scanning functions
•Program scan
The upper and lower scan limit frequencies are stored in memory channel 5.
•Memory scan
Memories in which no data is stored are automatically skipped during memory scan.
•Both program scan and memory scan continue after a preset time period (Time Operated Resume)
•Priority alert
Memory channel 1 will be scanned approximately once every 7 seconds to check for activity.

(3) Memory shift function
Operation will be returned to VFO tuning when the VFO knob is rotated during MR(Memory Recall) operation, beginning at the frequency of the current memory channel.

(4) Memory erase function
Allows the operator to easily clear unwanted memory channels.

(5) Memory check function
Display memory channel numbers sequentially in the display.

(6) Dual digital VFOs
VFO A(20kHz steps) and VFO B(10kHz steps), dual digital VFO's are provided for increased operator flexibility.

(7) Dual-function keyboard and audio "Beeper"
The operation of various functions is confirmed by the use of several distinct audio tones.

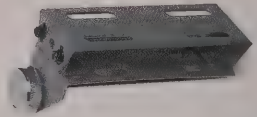
- **Multi-function LCD display with "S-meter"**

An easy to read, green multi-function LCD display indicates frequency, memory channel, VFO A/B, repeater offset, and S/RF level or battery indicator.

- **RIT (Receiver Incremental Tuning)**
- **MHz switch**
- **Ni-Cd battery and charger supplied**
- **16-key auto-patch UP/DOWN microphone supplied (U.S.A. only)**

Optional Accessories

MB-3: *Mobile Mount*



MC-42S: *UP/DOWN Microphone*

MC-55 *(8 pin): Mobile Microphone with time-out-timer*

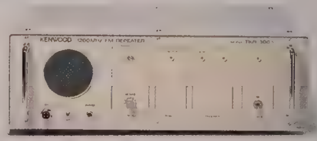
MC-60A/80/85: *Base Station Microphones*

PB-16: *Ni-Cd Battery (500mAh)*

SC-10: *Soft Case*

SWC-4: *1200MHz Coupler for SW-200A/B, 2000 SWR/Power Meter*

TKR-300A: *1200MHz FM Repeater*



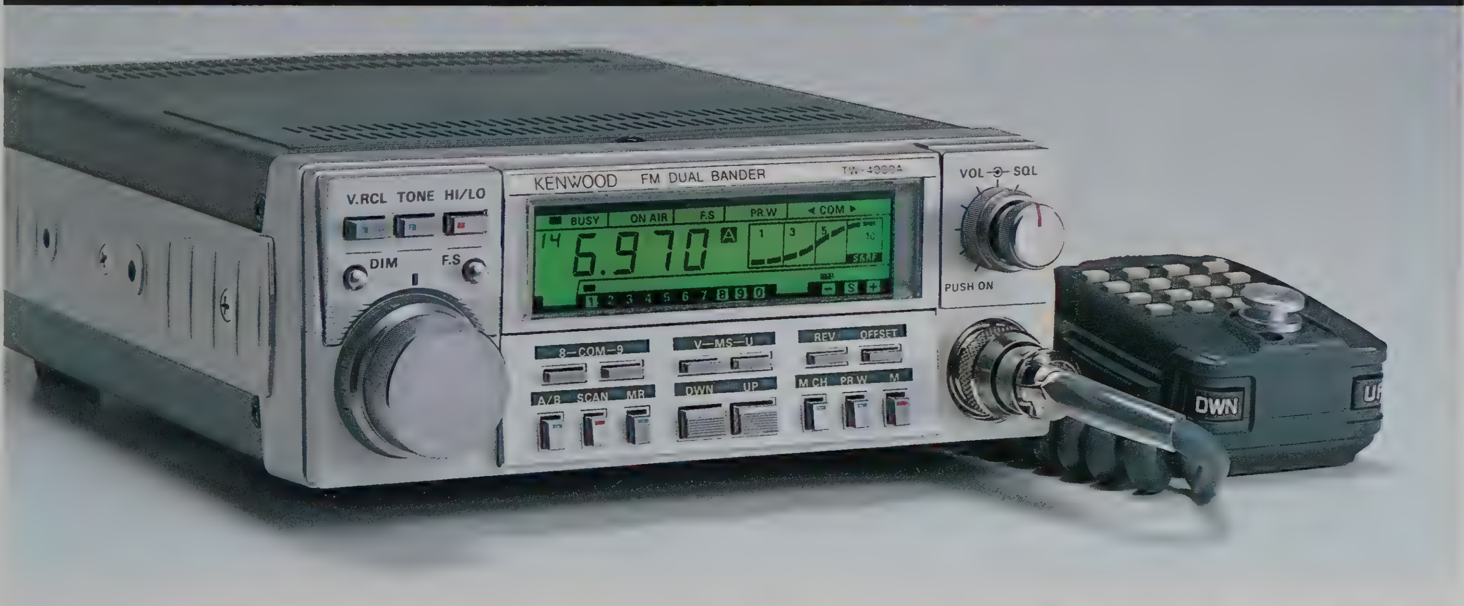
TU-6: *CTCSS Sub-audible Tone Encoder*

VB-50: *1200MHz RF Power Amplifier (10W)*

KENWOOD
RF GAIN
POWER
VB-50

TW-4000A

FM DUAL BANDER



An "FM Dual-Bander", the KENWOOD TW-4000A provides new versatility in VHF and UHF operations, uniquely combining 2-m and 70-cm FM functions in a single compact package.

2-m and 70-cm FM in a compact package
Covers the 2-m (142 ~ 149MHz) including certain MARS and CAP frequencies, plus the 70-cm band, all in a compact package.

25 watts RF power on 2-m and 70-cm bands
The use of high reliability RF power modules permits operation at 25 watts output on either 2-m or 70-cm, with a resultant extension in operating range.

Large, easy-to-read LCD display
A green, multi-function back-lighted LCD display is provided for best visibility.

Optional VS-1 "Voice Synthesizer Unit"
The voice announces frequency, band, VFO A or B, repeater offset, memory channel number, and data that has already been stored in the selected memory channel.

10 memory capability with offset recall and lithium battery back-up
Each memory stores frequency, band and repeater offset. Memory 1 is for priority watch frequency. Memory 8 and 9 are for common channel use.

Programmable memory scan
It is very versatile in that it can be programmed to scan all memory channels, or scan only 2-m or 70-cm channels.

Band scan in selected 1MHz segments
Scans within the chosen 1MHz band segment, using the selected frequency step.

Priority watch function
Switches back to memory channel 1 for 1 second out of every 10 seconds.

Common channel scan
Memory channels 8 and 9 are alternately scanned approximately every 5 seconds.

Dual digital VFOs
Tune independently, including band selection, allowing for easy frequency change from VFO "A" to "B", or vice versa.

16-key auto-patch UP/DOWN microphone
U.S.A. version only. Normal UP/DOWN microphone is supplied for other markets.

Repeater reverse switch
Transposes receive and transmit frequencies, for receiving on the input and transmitting on the output of repeater.

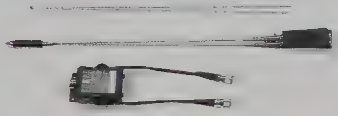
Front Panel illumination
The VFO knob and other important controls on the front panel are illuminated for easy operation during night operations.

- **High performance receiver and transmitter**
- **Rugged die-cast chassis**
- **Optional two-frequency CTCSS encoder**
- **Microphone test function**
- **"Beeper" circuit, with audio amplification**
- **Easy-to-install, adjustable-angle mobile mount**

Optional Accessories

KPS-7A: *DC Power Supply*

MA-4000: *Dual-Band Mobile Antenna with Duplexer*



MC-42S: *UP/DOWN Microphone*

MC-48: *16-key Auto-Patch UP/DOWN Microphone*

MC-55 (8 pin): *Mobile Microphone with Time-out-timer*

MC-60A/80/85: *Deluxe Desk-top Microphones*

PG-3A: *Noise Filter for DC Line*

PS-430: *DC Power Supply*

SP-40: *Compact Mobile Speaker*

SP-50: *Mobile Speaker*

SW-100B/200B: *SWR/POWER Meter*

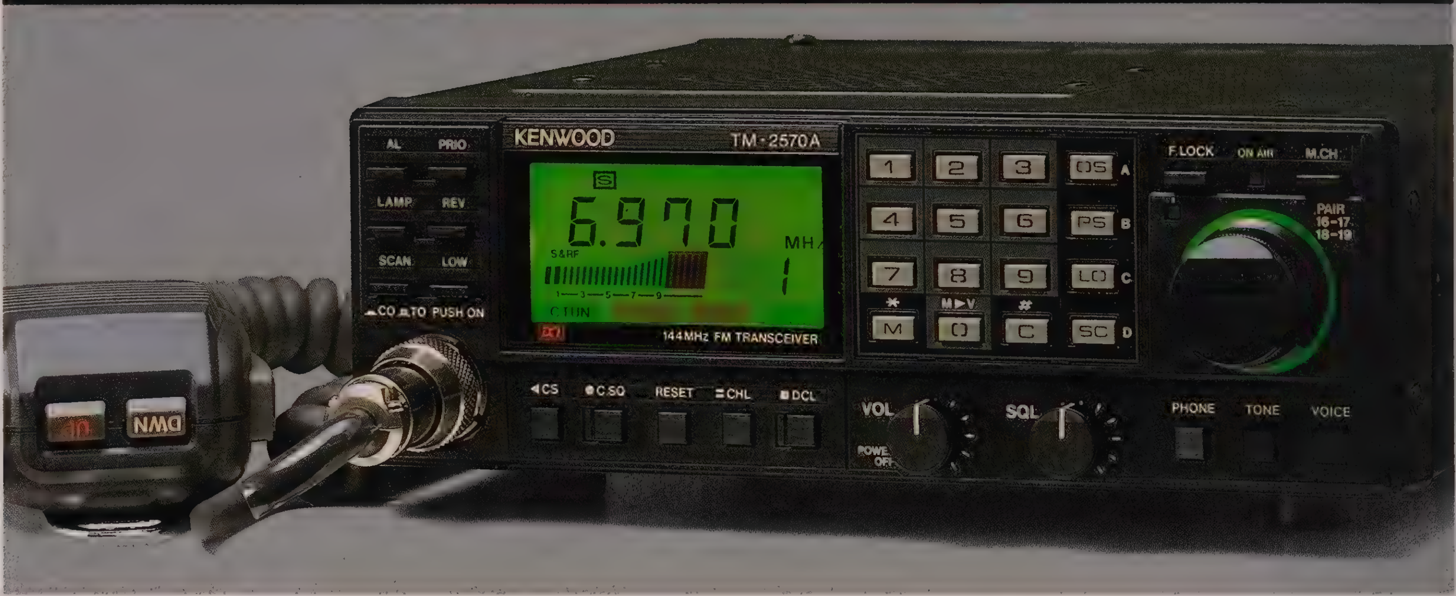
SWT-1/2: *2m/70cm Compact Antenna Tuner*

TU-4: *Two-frequency Programmable CTCSS Encoder*

VS-1: *Voice Synthesizer Unit*

TM-2570A/2550A/2530A

2-m FM MOBILE TRANSCEIVER



The KENWOOD TM-2570A/TM-2550A/TM-2530A 2 meter FM mobile transceivers have been designed to satisfy the needs of the most demanding 2 meter mobile operator.

- **70W, 45W, and 25W RF output versions**

A high reliability RF power amplifier stage makes possible three model versions, each having a different maximum power output: TM-2570A at 70W, TM-2550A at 45W and TM-2530A at 25W, adjustable low power position.

- **New large, easy-to-read LCD display**

A green, multi-function, back-lighted semi-penetration type LCD display is provided, for best visibility in direct sunlight or in darkness.

- **Optional MU-1 DCL "Digital Channel Link System" unit**

DCL is a revolutionary new signalling system developed by KENWOOD for Amateur radio, that utilizes the most advanced digital data transmission technology.

- **23 Multi-function memory channesl**

23 memory channels allow storage of frequency, repeater offset, telephone numbers, and sub-tone frequencies (TU-7 sub-tone unit optional), providing quick and easy operation during mobile use.

- **15 "Telephone Number" memory channels**

Channel 1 through 15 may be used to store up to 15.7-digit telephone numbers, entered using the front panel keyboard. Depressing the telephone key during transmission causes the selected telephone number to be automatically transmitted.

- **Center stop during programmable band scan**

During band scan, scanning action will stop in the center of the selected channel.

- **Extended frequency coverage**

Covers 142-149MHz in 5kHz steps, allowing simplex and repeater operation on many MARS and CAP frequencies (141—151MHz modifiable)

*Specifications are guaranteed for the 144—148MHz Amateur band only.

- **New easy-to-operate, illuminated keys**

A functionally designed control panel features expanded convenience and ease of operation during night-time use, through backlighted, individually illuminated keys.

- **Pre-programmed automatic offset**

The built-in microprocessor is pre-programmed for automatic simplex or ±600kHz offset allowing easy operation on the selected frequencies. Manual selection is also possible.

- **Memory scan and programmable band scan, resume selection**

During memory scan or band scan, scanning may be programmed to stop automatically on a busy channel.

a) Memory scan plus programmable memory channel lock-out
b) Programmable band scan
c) Programmable priority alert

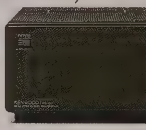
- **Programmable sub-tone channels**

The internal installation of the optional TU-7 sub-tone unit provides 38 keyboard selectable sub-tone frequencies.

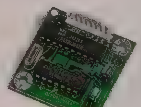
- **Built-in 16-key autopatch, with audible monitor circuit**
- **Lithium battery memory back-up**
- **Front-panel keyboard frequency selector**
- **Repeater reverse switch**
- **High performance receive/transmit specifications**
- **Audible "Beeper" confirms operation**
- **Microphone test function**
- **Optional VS-1 "Voice Synthesizer Unit"**
- **Frequency lock switch**

Optional Accessories

PS-50: *Heavy Duty DC Power Supply (for TM-2570A)*



PS-430: *DC Power Supply (for TM-2550A/2530A)*
CD-10: *Call Sign Display (option AC-10: AC Adaptor)*
TU-7: *38 Tone CTCSS Encoder*
MU-1: *DCL MODEM Unit*

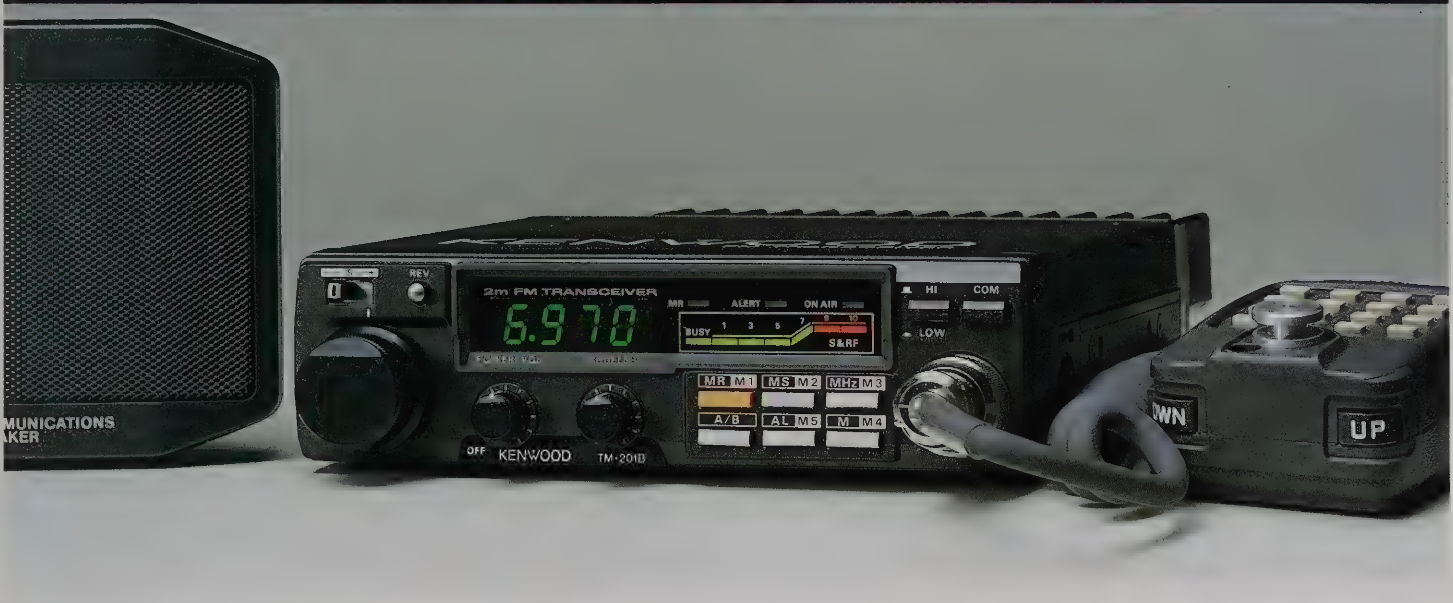


VS-1: *Voice Synthesizer Unit*
SW-100A/B: *SWR/POWER Meter*
SW-200A/B: *SWR/POWER Meter*
SWT-1: *2-m Antenna Tuner*
MC-60A/80/85: *Deluxe Desk-top Microphones*
MC-48: *16-key Auto-patch Microphone*
MC-55 (8 pin): *Mobile Microphone*
SP-40: *Compact Mobile Speaker*
SP-50: *Mobile Speaker*
PG-2K: *DC Cable*
PG-3A: *DC Line Noise Filter*
MB-10: *Mobile Mount*

- **Easy-to-install mobile mount included**
- **UP/DOWN microphone included**

TM-201B/401B

2-m/70cm COMPACT FM MOBILE TRANSCEIVER



The TM-201B 2-m and TM-401B 70-cm high power FM transceivers are designed to be the ultimate in compact size and lightweight, allowing maximum flexibility in automotive installations.

■ 45W (TM-201B), 25W (TM-401B), with HI/LO power switch

The TM-201B provides a powerful 45 watts and the TM-401B a husky 25 watts RF output, from a surprisingly compact design.

■ High performance receive/transmit: specifications

The use of a GaAs FET RF amplifier, plus an improved antenna switching circuit, provides high sensitivity with wide dynamic range. Transmitter and receiver modulation characteristics selected for best sound quality and minimum distortion.

■ Ultra-compact and lightweight

Measures only 141 (5.6) W×39.5 (1.6) H×183 (7.3) D mm (inch), and weights only 1,25kg (2.8 lbs.), perfect for installation in today's compact automobiles.

■ Dual digital VFOs built-in

The TM-201B dual digital VFOs tune independently from 142.000 to 148.995MHz in 5kHz steps, and include certain MARS and CAP frequencies.

■ 5 Memories plus "COM" channel, with lithium battery back-up

Memory 1 is for the priority alert function, Memory 2 and 3 store a single frequency, and permit repeater operation using the OFFSET switch. Memory 4, 5 and COM (common) channels store transmit and receive frequencies independently. The COM channel switch allows instant recall of frequency and tone (with optional TU-3 or TU-3A installed) for ease of operation on the most popular frequency.

■ Priority alert scan

One every 6 seconds, the unit scans back to memory channel 1 for approx. 0.3 seconds to monitor the activity on priority channel.

■ Memory scan and programmable band scan

MS switch intiates memory scan. Skips memories in which no data is stored. Two frequencies, stored independently in memory 5, set band scan frequency limits.

■ Highly visible yellow LED frequency display

Four digit yellow LED display featuring improved visibility indicates receive and transimit frequencies.

■ Repeater offset switch and reverse switch

±600kHz (TM-201B)/±5MHz (TM-401B) or simplex is selected by the front panel offset switch. The repeater reverse switch transposes the receive and transmit frequencies for checking signals on the input of a repeater.

■ External high-quality speaker supplied

Supplied with a compact, high quality, external speaker, providing flexibility in installation for maximum convenience.

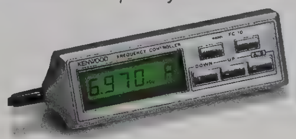
■ 16-key autopatch UP/DOWN microphone supplied

(U.S.A. version only. Normal UP/DOWN microphone is supplied for other markets)

- **■ Optional* TU-3 or TU-3A two-frequency tone encoder**
- **■ Optional FC-10 frequency controller**
- **■ Audible "Beeper" confirms operation**
- **■ Easy-to-install mobile mount**

Optional Accessories

FC-10: *Remote Frequency Controller*

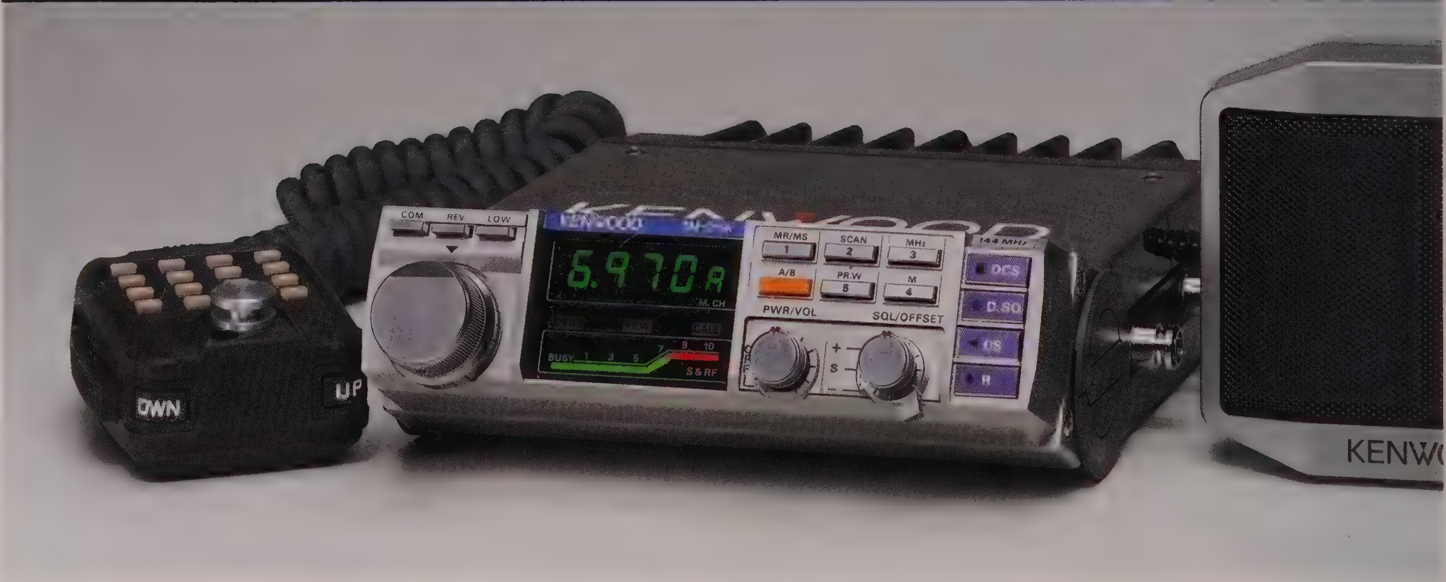


PS-430: *DC Power Supply*
KPS-7A: *DC Power Supply for TM-401B (Available only in U.S.A.)*
TU-3 or TU-3A: *Two Frequency Sub-tone Encoder*

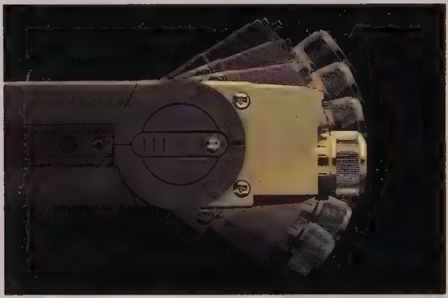
SW-100A/B: *SWR/POWER Meter*
SW-200A/B: *SWR/POWER Meter*
SWT-1/SWT-2: *2-m/70-cm Antenna Tuner Unit*
SP-40: *Compact Mobile Speaker (4Ω)*
SP-50: *Mobile Speaker (8Ω)*
PG-2K: *DC Cable*
PG-3A: *DC Line Noise Filter*
MC-60A/80/85: *Deluxe Desk-Top Microphones*
MC-55 (8 pin): *Mobile Microphone with Time-Out-Timer*
MA-4000: *Dual Band Mobile Antenna with Duplexer*
MB-201: *Mobile Mount*

TM-211A/411A

2-m/70-cm COMPACT FM MOBILE TRANSCEIVER



The TM-211A 2-m and the TM-411A 70-cm DCS transceivers combine ultra-compact size with an impressive array of features to give you maximum flexibility in mobile operations.



- **25W RF output, with HI/LO (5W) power switch, Dual Digital VFO's, built-in 5-Channel memory with multiple scanning functions**
The transceiver can scan the memory channels or can be programmed to scan all or a portion of the band.

- **Extended frequency coverage on 2-m**
The TM-211A covers 142—149MHz includes most MARS and CAP frequencies. The TM-411A covers 438—450MHz.

- **Ultra-compact and lightweight**
Measures only 140 (5.51)W × 40(1.57)H × 197(7.76)D mm (inch) and weighs only 1.25kg (2.8 lbs.) an ideal size for installation in today's compact automobiles.

- **DCS "Digital Code Squelch"**
A revolutionary signalling concept for Amateur radio that utilizes the most advanced technology in digital data transmission.

- **7-position, tilting control panel**
The unique control panel may be adjusted to provide the best viewing angle and handiest access to controls.

- **External high quality speaker supplied**
Provides superior sound quality and installation flexibility.

- **Memory shift function**
Each of the five memory frequencies may be tuned by the VFO, operating as five built-in digital VFOs.

- **Priority watch**
This mode lets you keep an eye on an important channel when monitoring other frequencies.

- **Highly visible yellow LED frequency display**
Five digit yellow LED display indicates receive and transmit frequencies, plus VFO A/B or memory channel.

- **Microphone test function**
In the low power position, the RF bar meter reading varies with relative modulation, verifying output from the microphone.

- **Repeater offset and reverse switches**
±600kHz (TM-211A), ±5MHz (TM-411A), or simplex is selected by the front panel offset switch.
The repeater reverse switch transposes the receive and transmit frequencies for checking signals on the input of a repeater.

- **High performance receive/transmit specifications**
The use of GaAs FET's in the RF amplifier, plus an antenna switching circuit, provides extra high receive sensitivity and an excellent dynamic range. Transmitter modulation characteristics have been selected for best sound quality and minimum distortion.

- **Rugged die-cast chassis and large heat sink**

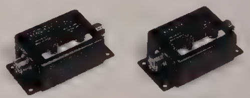
- **Glass-epoxy circuit boards**

- **Easy-to-install mobile mount**

Optional Accessories

CD-10: *Call Sign Display*

PS-430: *DC Power Supply*
KPS-7A: *DC Power Supply (Available only in U.S.A.)*
SW-100A/B: *SWR/POWER Meter*
SW-200A/B: *SWR/POWER Meter*
SWT-1/SWT-2: *2-m/70-cm Antenna Tuner Unit*

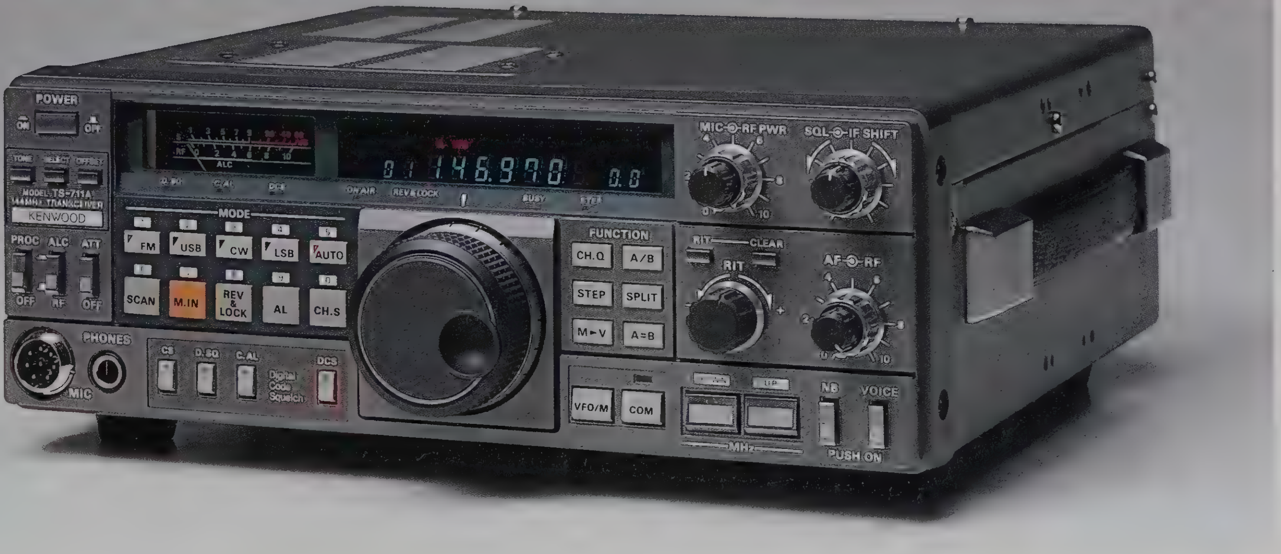


MC-60A/80/85: *Deluxe Desk-top Microphones*
MC-42S: *UP/DOWN Microphone*
MC-48: *16-key Auto-patch UP/DOWN Microphone*
MC-55 (8 pin): *Mobile Microphone with Time-out-timer*
MA-4000: *Dual Band Mobile Antenna with Duplexer*
SP-40: *Compact Mobile Speaker (4Ω)*
SP-50: *Mobile Speaker (8Ω)*
PG-3A: *DC Line Noise Filter*
TU-3A: *Two-frequency Tone Encoder*

- **16-key auto-patch UP/DOWN microphone Supplied**(U.S.A. version only. Normal UP/DOWN microphone is supplied for other markets.)

TS-711A/811A·B

ALL-MODE TRANSCEIVER



The TS-711A 2-m and TS-811A/B 70-cm all-mode transceivers feature enhanced ease of operation through the use of new microprocessor technology that permits the incorporation of the widest range of innovative features in a very compact package.

■ Frequency range
TS-711A: 144—148MHz
TS-811A: 430—450MHz (U.S.A. version)
TS-811B: 430—440MHz

■ DCS (Digital Code Squelch)
A revolutionary signalling concept developed by KENWOOD, for Amateur radio, utilizes the most advanced digital data transmission technology.

■ 10Hz step dual digital VFOs with TCXO
Provide commercial grade frequency stability throught use of a TCXO functioning in a two-loop PLL circuit.

■ All-mode plus auto-mode operations
Modes of operation include FM, USB, LSB, and CW. The first letter of the mode is announced in the Morse code.
An "AUTO" switch, when activated, cues the radio to automatically select the appropriate mode, depending on the frequency selected.

■ Channel "QUICK-STEP" tuning
Tuning characteristic varies from conventional VFO feel to stepping action.

■ New Microprocessor controller operation

●40 multi-function memory channels.
Allows storage of frequency, mode, dial information, offset, and tone.

●Programmable band scan.
Scans automatically within the limits specified in memory channel 39 and 40.

●Memory scan plus programmable memory channel lock-out.
Memory scan scans only those channels in which data is stored. Lock-out function permits the operator to skip selected channels.

●Memory channel mode scan
Depressing the "SCAN" switch when the "AUTO" mode has been selected initiates all-mode scan.

●Alert
Memory channel 1 "alert channel" is monitored for activity approximately every 6 seconds.

■ Operational type RIT circuit
Shifts the receive frequency in 10Hz steps within a range of ±9.9kHz, without affecting the transmit frequency.

■ RF output power control
Continuously variable from 2 watts to maximum power in any mode.

■ IF shift
Allows the operator to move the IF pass-band in either direction around the received signal, to place interfering signals outside the pass-band.

■ Speech processor built-in
Combines an audio compression amplifier with a change in ALC time constant, resulting in an increase in average "talk power"

■ Voice synthesizer unit (optional)
Announces the frequency, digital code or tone frequency.

■ All-mode squelch circuit
Effective in suppressing background noise in all operating modes.

■ High performance noise blanker
Effective in suppressing pulse-noise (ignition noise).

■ Reverse and lock switch

■ Built-in AC power supply

Optional Accessories

CD-10: *Call Sign Display*

SP-430: *External Speaker*
VS-1: *Voice Synthesizer Unit*
TU-5: *CTCSS Tone Unit*
MB-430: *Mobile Mount*
PG-2J: *DC Power Cable*
SW-200A/B: *SWR/POWER Meter*
MC-60A/80/85: *Deluxe Desk-Top Microphone*
MC-48: *16-key Auto-patch UP/DOWN Microphone*
~~**MC-42S:** *UP/DOWN Microphone*~~
SWT-1/2: *2m/70cm Compact Antenna Tuner*

■ Multi-function fluorescent tube display

■ AC power supply built-in, optional DC power cable
■ Common channel
■ RF attenuator (TS-711A only)
■ AGC switch (TS-811A/B only)
■ CW semi break-in circuit, with side-tone

TR-751A/9130/9500

ALL-MODE TRANSCEIVER

KENWOOD
144MHz ALL MODE TRANSCEIVER TR-751A
BUSY
COM
ON AIR
4.200.0
VOL SQL PUSH ON
RIT RF GAIN
AUTO FM USB CW LSB
F.STEP SCAN M OFFSET A/B

The TR-751A all-mode, 2-m transceiver delivers superior performance and "All Mode Mobility."

- **25W RF output, with HI/LO power switch**

Provides a powerful 25 watts of RF output on SSB/CW/FM modes, for mobile or base station.

- **Compact and lightweight**
- **High performance receive/transmit specifications**

The use of a GaAs FET RF amplifier, plus an improved antenna switching circuit, provides high sensitivity with wide dynamic range. Transmitter and receiver modulation characteristics selected for best sound quality and minimum distortion.

- **Easy-to-operate functions**

●**All-mode operation**
Modes include FM, USB, LSB and CW transmit and/or receive. International Morse code confirms the selected mode.

●**Auto-mode operation**
Mode selection is automatically selected in appropriate mode, depending on frequency selected.

- **Optional MD-1 DCL "Digital Channel Link System" Unit**

DCL is revolutionary new signalling system developed by KENWOOD for Amateur radio that utilizes the most advanced digital data transmission technology.

- **Easy-to-read S & RF analog meter**
- **Various frequency control function**

●**Dual digital VFOs built-in**
Dual digital VFOs tune independently, including mode selection, frequency step and repeater information.

●**10 memories plus "COM" channel, with lithium battery back-up**
Ten memories store frequency, mode, repeater offset and tone information.

- **Extended frequency coverage**

Covers 142—149MHz. Also expandable for coverage 141—151MHz.
(Specifications are guaranteed for the 144—148MHz Amateur band only)

- **Various scan functions**

●**Programmable band scan**
●**Memory scan**
●**Memory channel mode scan**
●**Alert**

- **Repeater offset**

Selects ±600kHz or simplex.

- **Repeater reverse switch**

Transposes the receive and transmit frequencies for checking signals on the input of a repeater

- **Programmable sub-tone channels**

The internal installation of the optional TU-7 sub-tone unit provides 38 keyboard selectable sub-tone frequencies.

- **Superb SSB and CW modes operating functions**

●**All-mode squelch circuit**
●**Noise blanker**
●**Semi break-in and side tone**
●**Built-in RIT**

- **Large, easy-to-read LCD display**
- **16-key autopatch UP/DOWN microphone supplied** (U.S.A. version only. Normal UP/DOWN microphone is supplied for other markets.)
- **Memory shift function**
- **AUX terminal on rear panel for linear amplifier control**
- **Optional VS-1 "Voice Synthesizer Unit"**
- **"BEEPER" amplified through audio circuit**
- **Frequency lock switch**
- **Low power output level adjustment**
- **Easy-to-install mobile mount**

The powerful 25 watts (TR-9130) and 10 watts (TR-9500), all-mode transceivers provide increased versatility of operation on the 2-m and 70-cm bands.

- **25 watts RF output power (TR-9130)**
- **Six memories**
- **Battery back-up (battery not supplied)**
- **Memory scan**
- **Automatic band scan (1MHz segments)**
- **16-key auto-patch UP/DOWN microphone**
- **All-mode squelch circuit**
- **Repeater reverse switch and tone switch**
- **Tuning transmit frequency for OSCAR**
- **Built-in CW semi break-in with side tone**
- **Dual digital VFOs**
- **Repeater offset switch**
- **Extended frequency range (144～149MHz)**
- **RF gain control and RIT circuit**
- **Optional BO-9A "System Base"**

Optional Accessories

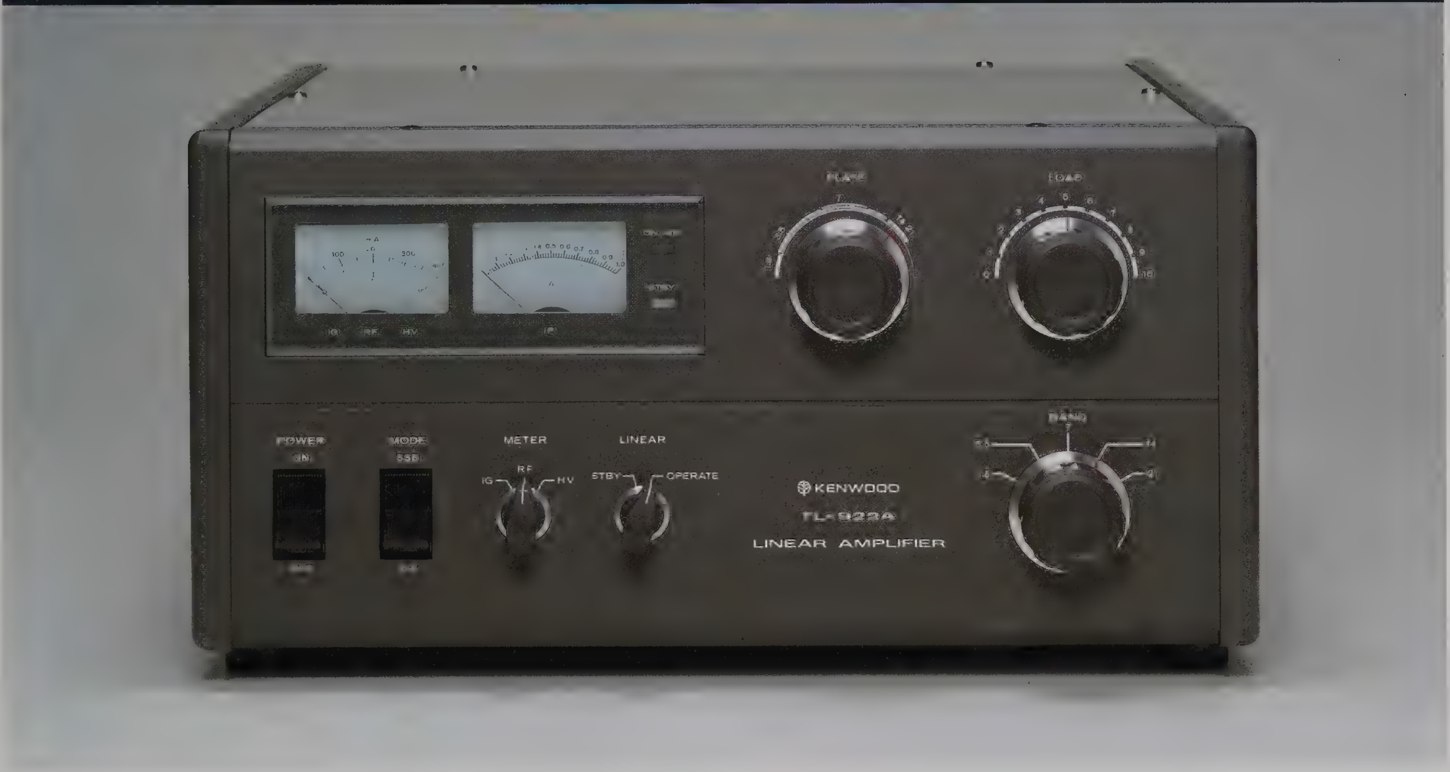
CD-10: *Call Sign Display (TR-751A)*
PS-430: *DC Power Supply*
SW-100A/B, 200A/B: *SWR/POWER Meters*
SWT-1/2: *2-m/70-cm Antenna Tuning Unit*
TU-7: *38 Tone CTCSS Encoder (TR-751A)*
MU-1: *MODEM Unit for DCL system (TR-751A)*
VS-1: *Voice Synthesizer Unit (TR-751A)*
MB-10: *Mobile Mount (TR-751A)*
SP-40/50: *Compact Mobile Speakers*

MC-60A/80/85: *Deluxe Desk-Top Microphones*
MC-48: *16 Key Autopatch UP/DOWN Microphone*
MC-55 (8 pin): *Mobile Microphone Time-out-Timer*
PG-2K: *DC Cable (TR-751A)*
PG-3A: *DC Line Noise Filter*

TL-922/922A

1149

HF LINEAR AMPLIFIER

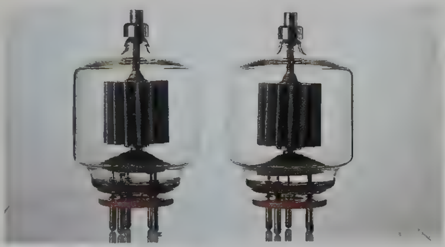


The TL-922 and TL-922A are HF linear amplifiers designed to provide maximum legal power, utilizing two 3-500Z high performance transmitting tubes. The TL-922A is designed for the U.S.A. market and does not cover the 10 meter band, in conformance with FCC regulations.

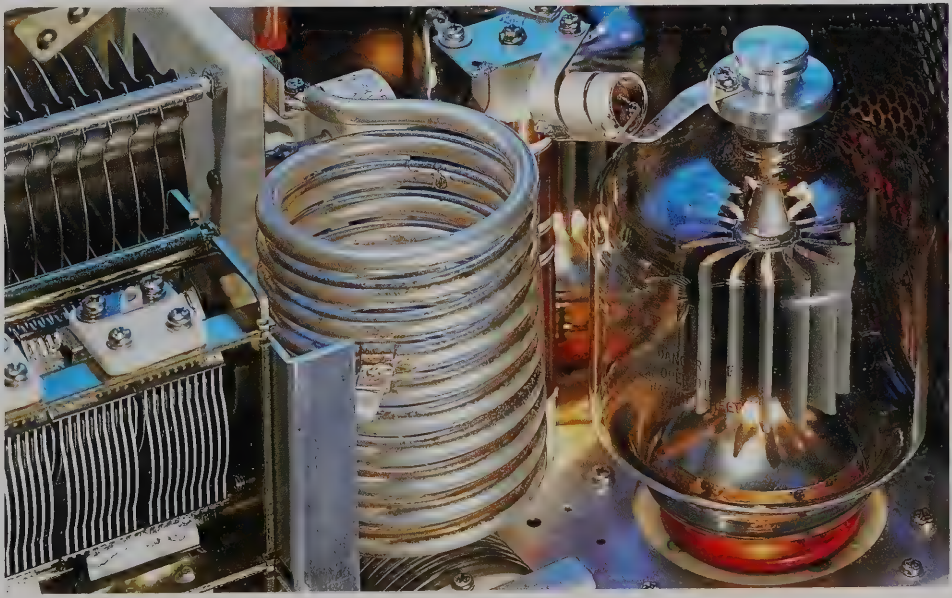
Specifications

●Frequency Range: 160, 80, 40, 20, 15, 10 meters band (10 meter band: not on TL-922A) ●Mode: SSB, CW, RTTY ●Drive Power: 80W or more for full output ●RF Input Power: SSB=2000WPEP, CW, RTTY=1000WDC ●Circuitry: AB_2 class grounded-grid linear amplifier ●Input/Output Impedance: 50Ω/50 ~ 75Ω ●Fan Motor Delay Stop Time: 140 ±30 seconds. ●ALC: Negative going adjustable threshold −8VDC max. Output (typical) ●Power Requirement: 120/220V ,28A 50/60Hz type. 220/240V 14A 50/60Hz type. ●Dimensions: 390(15.4) × 190(7.5)H × 407(16.0)Dmm (inch) ●Weight: 31kg (68.3 lbs.)

- Utilizes a pair of high performance EIMAC 3-500Z transmitting tubes.

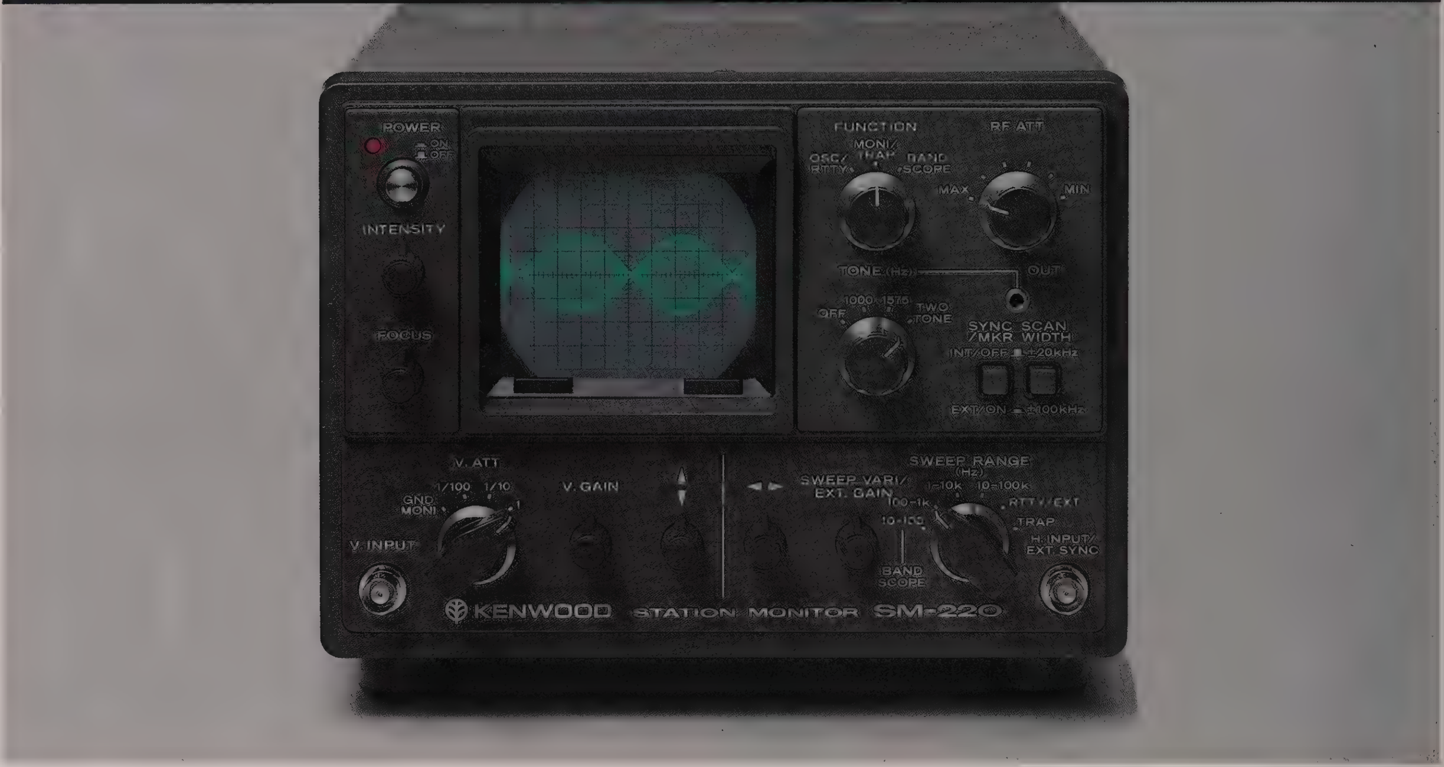


- Incorporates class AB_2 rounded-grid amplifier circuit.
- Excellent IMD (intermodulation distortion) characteristics.
- Safety protection provision.
- Cooling fan power "OFF" delay circuit.
- Variable threshold level type ALC circuit.
- Two meters for maximum operating convenience.
- Styling and finish matches KENWOOD transceivers.
- 2kW PEP input
- Covers 160m ~ 10m (TL-922), 160m ~ 15m (TL-922A) (Not for QSK operation)



SM-220

STATION MONITOR

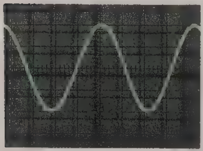

POWER
ON
OFF
INTENSITY
FOCUS
FUNCTION
OSC/RTTY
MONI/TRAP
BAND SCOPE
RF ATT
MAX
MIN
TONE (Hz)
OUT
OFF
1000
1575
TWO TONE
SYNC SCAN
/MKR WIDTH
INT/OFF ±20kHz
EXT/ON ±100kHz
V. ATT
GND MONI
1/100
1/10
1
V. GAIN
V. INPUT
SWEEP VARI/
EXT. GAIN
SWEEP RANGE (Hz)
1-10k
10-100k
100-1k
10-100
RTTY/EXT
TRAP
H. INPUT/
EXT. SYNC
BAND SCOPE
KENWOOD STATION MONITOR SM-220

The SM-220 station monitor features a built-in two-tone generator for a wide variety of waveform-observing capabilities.

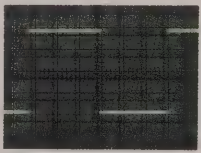
An optional feature is a unique panoramic display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency-range oscilloscope for various adjustments and experiments.

■ A 2Hz to 10MHz wide bandwidth, high-performance oscilloscope

The vertical amplifier has a high sensitivity of 20mV/division, with a broad frequency range of from 2Hz to 10MHz



Sine wave



Square wave

■ Capable of monitoring various incoming signal waveforms

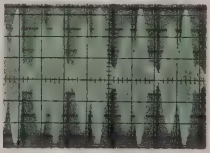
Making full use of the scope's wideband performance, it can monitor the IF output waveforms of incoming signals being received by some transceivers.

■ Pan display capability with optional BS-8

Enables the operator to look at on-the-air conditions within the band width of 20kHz or 100kHz.

■ Ensures quality signal transmission

A glance at the CRT screen allows quick and accurate SSB microphone gain setting, key-click elimination, and other adjustments for maintaining quality signal transmission with minimum distortion.

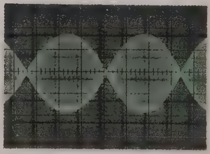


Speech pattern

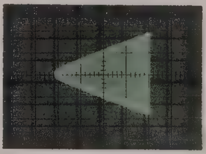
RTTY cross pattern

■ Built-in a 1000Hz and 1575Hz two-tone generator

Used to check SSB transmit performance



Two-tone oscillator waveform



Trapezoid waveform

Specifications

(Transimit Signal Monitor Terminal) ●Frequency range: 1.8—150MHz ●Maximum power: 1kW (1.8—54MHz), 50W (150MHz) ●SWR: 1.2:1 or less ●Deflection sensitivity: Better than 1 div. at 2W input ●Attenuator: 6 steps **(Trapezoid waveform observation)** ●Frequency range: 1.8—30MHz ●Maximum power at DRIVE TERMINAL: 2—100W ●SWR: 1.2:1 or less **(Two-tone generator)** ●Oscillator frequency: 1,000Hz and 1,575Hz ●Output voltage: 10mV/50kΩ (at TWO TONE) **(Pan display unit)** ●Input center frequency: 3.395MHz (BS-5), 8.830MHz (BS-8) ●IF frequency: 455kHz ●IF bandwidth: More than 1kHz (–6dB) ●Input sensitivity: Better than 10μV/div. ●Scan width: ±20kHz, ±100kHz, switchable gain **(Horizontal amplifier)** ●Deflection sensitivity: More than 300mV/div. ●Frequency response: DC—250kHz or over (EXT GAIN at MAX); DC—40kHz (EXT GAIN at 1/2) ●Input resistance/capacitance: 1 MΩ (±20%)/35 PF or less (SYNC switch at INT) ●Attenuator: Fully variable to 0 ●Max. input voltage: 100Vp-p **(Sweep circuit)** ●Sweep frequency: 10Hz—100kHz (4 ranges, with fine adjustment) ●Sweep linearity: Better than 5% ●Sync amplitude: Internal; Better than 1 div. on CRT external; Better than 2Vp-p **(Vertical amplifier)** ●Deflection sensitivity: Better than 20mV/div. ●Frequency response: 2Hz—10MHz (–3dB) ●Input resistance/capacitance: 1MΩ/40 PF ●Overshoot: Less than 5% ●Attenuator: 1, 1/10, 1/100 and GND/MONITOR (Error between steps: 5% max.) ●Max. input voltage: 300V (DC+AC peak) or 600Vp-p ●Power supply: 120/220/240V AC ±10%, 50/60Hz 20W ●Dimensions: 215 (8.6)W × 153(6.1)H × 335(13.4)Dmm (inch) ●Weight: 5kg (11 lbs.)

Optional Accessory

- **BS-8:** *Pan Display Unit for TS-940S/TS-830S/TS-530SP (with simple modification)*

LIST OF KENWOOD ACCESSORIES

Model	Description	Complementary Equipment
AC-10	AC adaptor	CD-10
AJ-1	BNC male to UHF SO-239	
AJ-2	BNC female to UHF PL-259	
AJ-3	Thread-loc to BNC female	TH-21AT·A/31AT·A/41AT·A
AL-1	Lightning & static protector 100 W with SO-239	
AL-2	Lightning & static protector 100 W with N connector	
AT-130	Antenna tuner (80~10-m)	TS-130SE·V
AT-230	Antenna tuner (160~10-m)	TS-940S/930S/830S/530SP/430S/130SE
AT-250	Automatic antenna tuner (160~10-m)	TS-430S
AT-930	Automatic antenna tuner (80~10-m)	TS-930S
AT-940	Automatic antenna tuner (160~10-m)	TS-940S
AT-440	Automatic antenna tuner (80~10-m)	TS-440S
AX-2	Shoulder strap with antenna base	TR-2500/3500/2600A/3600A
BC-1	AC battery charger	TR-2500/3500
BC-2	AC battery charger	TR-2600A/3600A
BC-5	DC-DC quick charger	TR-2400
BC-6	Quick Battery Charger	PB-21, PB-21H
BO-9A	Base stand	TR-9130/9500
BS-8	Pan display unit for SM-220	TS-940S/830S/530S·SP/180S/820
BT-1	Manganese/alkaline battery case	TR-2500/3500
BT-2	Manganese/alkaline battery case	TH-21AT·A/31AT·A/41AT·A
BT-3	Manganese/alkaline battery case	TR-2600A/3600A
CD-10	Call sign display	
DC-21	DC-DC converter for 12 V operation	TH-21AT·A/31AT·A/41AT·A
DC-25	DC-DC converter for 12 V operation	TR-2500/2600
DC-26	DC-DC converter for 12 V operation	TR-2600A/3600A
DCK-1	DC operation kit	R-600/1000/2000
DFC-230	Digital frequency controller	TS-130SE·V
DS-2*	DC-DC converter for 12 V operation	TS-830S (Excluding USA version)
EB-2	External battery case	TH-21AT·A/31AT·A/41AT·A
EB-3	External battery case	TR-2600A/3600A
FA-4	Fan unit	TS-130SE·V
FC-10	Frequency controller	TM-201A·B/401A·B
FM-430	FM unit	TS-430S/670
GC-10	General coverage receiver unit	TS-670
HA-3*	Vertical antenna	TS-660/670
HMC-1	Headset with VOX	TR-2600A/3600A TH-21AT·A/31AT·A/41AT·A
HS-4	Headphones	Most models
HS-5	Deluxe headphones (8 Ω)	
HS-6	Small-size headphones (12.5 Ω)	
HS-7	Micro headphones (16 Ω)	
HS-8*	Micro headphone (32 Ω)	
KB-1	Deluxe VFO knob	TS-830S/530S·SP, VFO-240
LF-30A	Low-pass filter	
LH-1	Deluxe leather case	TR-2400
LH-2	Deluxe leather case	TR-2500
LH-3	Deluxe leather case	TR-2600A/3600A
MA-5	5 band helical-type HF mobile antenna	TS-430S/440S
MA-4000	2-m/70-cm dual band mobile antenna with duplexer	TW-4000A, TS-780
MB-3	Mobile mount	TR-50
MB-9	Mobile mount	TR-7800/7850/7930/7950/9130/9500
MB-10	Mobile mount	TM-2570A/50A/30A TR-751A
MB-77	Mobile mount	TR-7730/8400
MB-100	Mobile mount	TS-130SE·S·Y/660
MB-201	Mobile mount	TM-201A·B/401A·B/211A/411A
MB-430	Mobile mount	TS-430S/440S/670/711A/811A·B
MB-4000	Mobile mount	TW-4000A
MC-30S	Noise-cancelling hand microphone (4P)	
MC-35S	Noise-cancelling hand microphone (4P)	
MC-40S*	UP/DOWN hand microphone (6P)	
MC-42S	UP/DOWN hand microphone (8P)	
MC-46	16-key auto-patch UP/DOWN microphone (6p)	
MC-48	16-key auto-patch UP/DOWN microphone (8p)	
MC-50	Desk-top microphone (4P)	
MC-55	Mobile microphone with time-out-timer (6P or 8P)	
MC-60A	Deluxe desk-top microhone with built-in preamplifier (8P)	
MC-60N4*	Deluxe desk-top microphone (4P)	
MC-80	Desk-top microphone with preamplifier (8P)	
MC-85	Deluxe desk-top microphone with audio level compensation (8P)	
MJ-46	Microphone plug adaptor (mic 4-P/radio 6-P)	
MJ-48	Microphone plug adaptor (mic 4-P/radio 8-P)	
MJ-64	Microphone plug adaptor (mic 6-P/radio 4-P)	
MJ-68	Microphone plug adaptor (mic 6-P/radio 8-P)	
MJ-84	Microphone plug adaptor (mic 8-P/radio 4-P)	
MJ-86	Microphone plug adaptor (mic 8-P/radio 6-P)	
MS-1	Mobile stand/charger	TR-2500/3500/2600A/3600A
MU-1	DCL MODEM unit	TM-2570A/50A/30A TR-751A
PB-16	Extre Ni-Cd battery pack	
PB-21	Extre Ni-Cd battery pack	TH-21AT·A/31AT·A/41AT·A
PB-21H	Heavy duty Ni-Cd battery pack	TH-21AT·A/31AT·A/41AT·A
PB-24	Ni-Cd battery pack	TR-2400
PB-25	Ni-Cd battery pack	TR-2500/3500
PB-25H	Heavy duty Ni-Cd battery pack	TR-2500
PB-26	Ni-Cd battery pack	TR-2600A/3600A
PC-1A	Phone patch controller	
PG-2A	DC power cable	TR-8400/9500

Model	Description	Complementary Equipment
PG-2B	DC power cable	TR-7730/7800/7850/7930/7950/9130 TS-130V/660
PG-2C	DC power cable	TS-120S/130S·SE/180S/440S
PG-2E	DC power cable	
PG-2F	DC power cable	TR-50
PG-2G	DC power cable (with cigar plug)	MS-1
PG-2H	DC power cable	TM-201A·B/401A·B 211A/411A TW-4000A
PG-2J	DC power cable	TS-711A/811A·B
PG-2K	DC power cable	TM-2570A/2550A/2530A TR-751A
PG-3A	DC line noise filter (for mobile transceiver)	15A continuous, 20A intermitent
PG-4A	Microphone cable (4P-8P)	MC-60A
PG-4B	Microphone cable (6P-8P)	MC-60A
PG-4C	Microphone cable (8P-8P)	MC-60A
PG-4D	Microphone cable (4P-8P)	MC-85
PG-4E	Microphone cable (6P-8P)	MC-85
PG-4F	Microphone cable (8P-8P)	MC-85
PS-20	Power supply (4.5A)	
PS-30	Power supply (20A)	
PS-50	DC power supply	TM-2570A, TS-440S
PS-430	Power supply (10A continuous)	
RA-2	2-m rubber flex antenna	TR-2400/2500/2600A
RA-3	2-m telescoping antenna	TR-2400/2500/2600A
RA-4	70-cm rubber flex antenna	TR-3500/3600A
RA-5	2-m/70-cm 2 band telescoping antenna	TR-2400/2500/3500/2600A/3600A
RA-6	2-cm rubber flex antenna	TH-21AT·A
RA-7	70-cm rubber flex antenna	TH-41AT·A
RA-8A/9A/10A	2-m/220 MHz/70-cm StubbyDuk	TH-21AT/A, 31A/AT, 41A/AT
RA-8B/9B/10B	2-m/220 MHz/70-cm StubbyDuk for BNC	TR-2600A/3600A
RD-20	RF dummy load (20 W continuous)	
SC-3*	Soft case	TR-2400
SC-4*	Soft case	TR-2500/3500
SC-8/8T	Soft case with belt hook/ phone patch version	TH-21AT·A/31AT·A/41AT·A
SC-9	Soft case with belt hook	TR-2600A/3600A
SC-10	Soft case	TR-50
SM-220	Station monitor oscilоscope	
SMC-25	Speaker microphone	TR-2500/3500
SMC-30	Speaker microphone	TR-2600A/3600A TH-21AT·A/31AT·A/41AT·A
SO-1	TCXO (Temperature Compensated Crystal Oscillator)	TS-930S/940S
SP-40	Compact mobile speaker	
SP-50	Mobile speaker	
SP-71*	External speaker	TS-780
SP-100	External speaker	R-1000
SP-120	External speaker	TS-130SE TR-9130/9500
SP-230	External speaker with switched filter	TS-830S/530SP
SP-430	External speaker	TS-430S/440S

Model	Description	Complementary Equipment
		670/711A/811A
SP-930	External speaker with switched filter	TS-930S
SP-940	External speaker with switched filter	TS-940S
ST-2	Base stand and quick charger	TR-2500/3500/2600A/3600A
SW-100A	SWR/POWER meter (150 W, 1.8~150 MHz)	
SW-100B	SWR/POWER meter (150 W, 140~450 MHz)	
SW-200A	SWR/POWER meter (20/200 W, 1.8~150 MHz)	
SW-200B	SWR/POWER meter (20/200 W, 140~450 MHz)	
SW-2000	SWR/POWER meter (200/2000 W, 1.8~54 MHz)	
SWC-1	Extra coupler for SW-200A/B, 2000 (1.8~150 MHz)	
SWC-2	Extra coupler for SW-200A/B, 2000 (140~450 MHz)	
SWC-3	Extra coupler for SW-2000 (1.8~54 MHz)	
SWC-4	Extra coupler for SW-200A/B, 2000 (1200~1300 MHz)	
SWT-1	2-m antenna tuning unit	
SWT-2	70-cm antenna tuning unit	
TL-922/922A	HF linear amplifier (TL-922A: for U.S.A.)	TS-940S/930S/430S/440S/830S/530S/130SE·V
TU-3	CTCSS tone encoder	TM-201A·B/401A·B
TU-3A	CTCSS tone encoder	TM-211A/411A/201B/401B
TU-4	CTCSS tone encoder	TW-4000A
TU-5	CTCSS tone unit	TS-711A/811A·B
TU-6	CTCSS tone unit	TH-21AT·A/31AT·A/41AT·A
TU-7	38 tone CTCSS encoder	TM-2570A/50A/30A, TR-751A
TU-35B	Programmable tone encoder	TR-2600A/3500/3600A
VB-2530	25 W power amplifier	TR-2600A
VC-10	VHF converter unit	R-2000
VFO-120	Remote VFO	TS-130SE·V
VFO-230	Digital remote VFO	TS-830S/530S·SP
VFO-240	Remote VFO	TS-830S/530S·SP
VOX-4	VOX/Speech processor	
VP-1	Bumper mount	MA-5
VS-1	Voice synthesizer unit	TW-4000A, TR-751A TS-940S/440S/711A/811A·B/670
YG-455C	500 Hz CW filter for 455 Hz IF	TS-830S/R-2000
YG-455C-1	250 Hz CW filter for 455 kHz IF	TS-930S/940S
YG-455CN	250 Hz CW narrow filter for 455 kHz IF	TS-830S/R-2000
YG-455CN-1	250 Hz CW narrow filter for 455 kHz IF	TS-930S/940S
YK-88A	6 kHz AM filter	TS-430S/670
YK-88A-1	6 kHz AM filter for 8.83 MHz IF	TS-930S/940S
YK-88C	500 Hz CW filter	TS-830S/530SP/430S/440S/670/130SE
YK-88C-1	500 Hz CW filter for 8.83 MHz IF	TS-930S/940S
YK-88CN	270 Hz CW filter	TS-530SP/430S/440S/670/130SE
YK-88S	2.4 kHz SSB filter	TS-440S
YK-88SN	1.8 kHz SSB narrow filter	TS-530SP/430S/440S/670/130SE

* Not available in U.S.A

Specifications for optional microphones

Model	Type (Microphone)	Connector	Output Impedance	Others	Transceiver
MC-30S/35S	Noise cancelling dynamic	4 pin	500 Ω (MC-30S) 50 kΩ (MC-35S)	Noise cancelling type	TS-130SE·SE·S·V/530S·SP/830S
MC-40S/42S	Omnidirectional dynamic	6 pin (MC-40S) 8 pin (MC-42S)	500 Ω ±30%	Built-in UP/DOWN SW	MC-40S: TR-7730/7800/7850/9130/8400/9500/7950/7930 MC-42S: TS-940S/930S/670/440S/430S/780/711A/811A•B, TR-50
MC-46/48	Electret condenser	6 pin (MC-46) 8 pin (MC-48)	500 Ω~2 kΩ (MC-46) 600 Ω (MC-48)	16 key auto-patch with UP/DOWN SW	MC-46: TR-7730/7800/7850/9130/8400/9500 MC-48: TW-4000A, TM-201A·B/401A·B/211A/411A, TR-751A, TS-711A/811A·B
MC-50	Unidirectional dynamic	4 pin	Dual impedance 50 kΩ ±20% 600 Ω ±20%		TS-130SE·S·V/530S·SP/830S
MC-60A	Unidirectional dynamic	8 pin	Dual impedance 50 kΩ ±30% 500 Ω ±30%	UP/DOWN SW Built-in pre-amplifier	
MC-80	Omnidirectional electret condenser	8 pin	700 Ω ±30% (at 1000 Hz)	UP/DOWN SW Built-in pre-amplifier	TS-940S/930S/440S/430S/670/780/711A/811A•B, TW-4000A, TM-201A·B/401A·B/211A/411A
MC-85	Unidirectional electret condenser	8 pin	700 Ω ±30% (at 1000 Hz)	UP/DOWN SW Built-in audio level compensation	
MC-55	Unidirectional electret condenser	6 pin version 8 pin version	700 Ω approx.	UP/DOWN SW	TS-7950/7930/440S/430S, TW-4000A, TM-201A·B/401A·B 211A/411A, TR-50

Specifications for optional filters

Model	Center frequency	Bandwidth −6 dB	Bandwidth −60 dB	Guaranteed attenuation	Transceivers
YG-455C	455.7 kHz	500 Hz	820 Hz	More than 80 dB	TS-830S/R-2000
YG-455C-1	455.0 kHz	500 Hz	820 Hz	More than 80 dB	TS-930S/940S
YG-455CN	455.7 kHz	250 Hz	500 Hz	More than 80 dB	TS-830S
YG-455CN-1	455.0 kHz	250 Hz	480 Hz	More than 80 dB	TS-930S/940S
YK-88A	8831.5 kHz	6 kHz	11 kHz	More than 80 dB	TS-430S/670
YK-88A-1	8830.0 kHz	6 kHz	11 kHz	More than 80 dB	TS-930S/940S
YK-88C	8830.7 kHz	500 Hz	1.8 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP/830S/670
YK-88C-1	8830.0 kHz	500 Hz	1.5 kHz	More than 80 dB	TS-930S/940S
YK-88CN	8830.7 kHz	270 Hz	1.2 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP/830S/670
YK-88S	8830.0 kHz	2.4 kHz	4.4 kHz	More than 80dB	TS-440S
YK-88SN	8830.0 kHz	1.8 kHz	3.6 kHz	More than 80 dB	TS-130SE•S•V/430S/440S/530S•SP

Telex (Ham IV) Ritche)
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860320 ② B Printed in Japan

TM-2570A/3530A SERIES

TM-2570A	70W 2M FM, DTMF, 23mem. autodialer	589.95
TM-2550A	45W version of above	489.95
TM-2530A	25W version of above	459.95
TM-3530A	220MHz, 25W version of above	479.95
MB-10	Extra mobile mount	24.95
MC-48B	DTMF UP/DOWN hand microphone	64.95
MU-1	DCL modem unit	44.95
PG-2N	Extra DC cable	8.95
TU-7	38-tone encoder	36.95
VS-1	Voice synthesizer	54.95

TM-221A/321A/421A COMPACT MOBILE SERIES

TM-221A	2M 45W Compact FM, 14mem. DTMF mic	419.95
TM-321A	220MHz 25W Compact FM, 14mem. DTMF mic	439.95
TM-421A	440MHz 35W Compact FM, 14mem. DTMF mic	439.95
MB-201	Extra mobile mount	14.95
RC-10	Remote controller for TM-221A/321A/421A	219.95
PG-4G	Extra control cable for RC-10	18.95
TSU-5	CTCSS decoder for TM-221A/421A	39.95

TR-751A/851A SERIES

TR-751A	2M 25W FM/SSB/CW, DTMF mic	629.95
TR-851A	430-440MHz 25W FM/SSB/CW, w/ MC-43S	729.95
KPS-7A	Power supply for TR-751A series	79.95
MB-10	Extra mobile mount for TR-751A/851A	24.95
MU-1	DCL modem unit for TR-751A/851A	44.95
TU-7	38-tone encoder for TR-751A/851A	36.95
VS-1	Voice synthesizer for TR-751A/851A	54.95

TW-4100A SERIES

TW-4100A	2M 45W/70cm 35W FM dual-bander w/ DTMF mic	669.95
MA-4000	2M/70cm Dual-band mobile antenna w/ duplexer	59.95
MB-11	Extra mobile mount	24.95
VS-2	Voice synthesizer for TW-4100A	54.95

TS-711A/811A SERIES

TS-711A	2m 25W all mode, power supply built-in	999.95
TS-811A	430-450MHz version of above	1,199.95
PG-2U	Cable for 12V operation	10.95
TU-5	Sub-tone encoder	44.95
VS-1	Voice synthesizer	54.95

TR-50 SERIES

TR-50	1260-1300MHz 1W FM w/ DTMF mic	599.95
MB-3	Mobile mount	25.95
PB-16	Extra NiCd battery pack(also for TR-2200A)	41.95
SC-10	Soft case	39.95
TU-6	Sub-tone encoder	36.95
VB-50	1.2GHz 10W RF amplifier	349.95

COMPUTER INTERFACE

IF-232C	Level translator for all systems	89.95
IC-10	Interface IC kit for TS-440S/R-5000	29.95
IF-10A	Interface module for TS-711A/811A	59.95
IF-10B	Interface module for TS-940S	59.95

AC-10	AC adaptor for IF-232C	19.95

ACCESSORIES FOR TR-2400/2500/2600A SERIES

AX-2	Shoulder strap w/ antenna base	29.95
BC-2	Wall charger for PB-2/21H/25/26	16.95
BT-1	AA battery case for TR-2500/3500	14.95
BT-3	AA battery case for TR-2600A/3600A	14.95
DC-25	DC-DC converter for TR-2500/3500	29.95
DC-26	DC-DC converter for TR-2600A/3600A	29.95
EB-3	External C battery case for TR-2600A	19.95
HMC-1	Headset w/ VOX for TR-2600A/3600A	49.95
LH-1	Deluxe leather case for TR-2400	40.95
LH-2	Deluxe leather case for TR-2500/3500	40.95
LH-3	Deluxe leather case for TR-2600A/3600A	40.95
MS-1	Mobile charger for TR-2500/2600A series	59.95
PB-16	NiCd battery pack for TR-50/2200A	41.95
PB-24	NiCd battery pack for TR-2400	41.95
PB-25	NiCd battery pack for TR-2500/3500	49.95
PB-26	NiCd battery pack for TR-2600A/3600A	49.95
SC-9	Soft case w/ belt hook for TR-2600A	29.95
SMC-25	Speaker microphone for TR-2500/3500	42.95
SMC-30	Speaker microphone for TR-2600A/3600A	42.95
ST-2	Base stand charger for TR-2500/2600A	114.95
TU-35B	Tone encoder for TR-2600A/3600A	49.95
VB-2530	2M 25W amp. for TR-2400/2500/2600A	119.95

OTHER ACCESSORIES

AC-10	AC adaptor for CD-10/IF-232C	19.95
CD-10	Call sign display for DCL/DCS system	109.95
FC-10	Frequency display for TM-201A/201B series	59.95
HS-5	Deluxe headphones	59.95
HS-6	Lightweight headphones	39.95
HS-7	Micro headphones	25.95
KPS-7A	DC power supply, 13.8V 7A int	79.95
LF-30A	Low-pass filter, 30MHz, 1KW PEP	39.95
MA-5	HF mobile antenna(80/40/20/15/10M)	129.95
VP-1	Bumper mount for MA-5	49.95
MA-4000	2M/70cm dual-band mobile antenna w/ duplexer	59.95
MB-9	Extra mobile mount for TR-7950/9130	24.95
MB-100	Mobile mount for TS-130S/660	39.95
MB-201	Mobile mount for TM-201/211/221 series	14.95
MB-4000	Mobile mount for TW-4000A	14.95
MC-30S	Noise-cancelling mic. 4-pin, 500 ohm	39.95
MC-35S	Noise-cancelling mic. 4-pin, 50K ohm	39.95
MC-43S	UP/DOWN microphone, 8-pin	39.95
MC-46	16-key DTMF microphone, 6-pin	64.95
MC-48B	16-key DTMF microphone, 8-pin	64.95
MC-50	Dynamic base microphone, 4-pin	69.95
MC-55	Mobile mic. w/time-out timer, 6 or 8-pin	59.95
MC-60A	Deluxe dynamic mic. w/mic-amp, 8-pin	119.95
MC-80	Desk-top microphone, 8-pin	74.95
MC-85	Multifunction desk mic. 8-pin	129.95
MJ-46 48 64/68/84/86	Mic. adaptor plug	12.95
PC-1A	Phone patch (FCC part 68 registered)	99.95
PG-2F	DC cable for TR-2200A/50	6.95
PG-2G	DC cable with cigar plug for MS-1	8.95
PG-2L	DC cable for TM-201A/211A/TW-4000	6.95
PG-2N	DC cable for TM-2570/201B/221A/751A?TW-4100A	8.95
PG-2P	DC cable for AT-250/TR-8400/9000/9500	6.95
PG-2F	DC cable for TR-7850/7950/9130/TS-660	10.95
PG-2S	DC cable for TS-430S/440S/130S/180S	21.95
PG-2U	DC cable for TS-711A/811A	10.95
PG-2V	DC cable for 12V operation for TH-215A series	6.95
PG-3B	DC line noise filter, 20A	18.95
PG-4A/4B/4C	MC-60A adaptor cable 4/6/8-pin	18.95
PG-4D/4E/4F	MC-85 adaptor cable 4/6/8-pin	18.95
PG-4G	Extra control cable for RC-10	18.95
RD-20	Dummy load, 50 ohm 50W int	26.95
SP-40	Compact mobile speaker	35.95
SP-50B	Deluxe mobile speaker	35.95
SW-100A	SWR/power meter, 1.8-150MHz, 150W	64.95
SW-100B	SWR/power meter, 140-450MHz, 150W	64.95
SW-200A	SWR meter w/SWC-1, 1.8-150MHz, 200W	119.95
SW-200B	SWR meter w/SWC-2, 140-150MHz, 200W	119.95
SW-2000	SWR meter w/SWC-3, 1.8-50MHz, 2000W	139.95
SWC-1	Directional coupler, 1.8-150MHz, 200W	41.95
SWC-2	Directional coupler, 140-150MHz, 200W	41.95
SWC-3	Directional coupler, 1.8-50MHz, 2000W	41.95
SWC-4	Directional coupler, 1260-1300MHz,20W	49.95
SWT-1	2M compact antenna tuner, 200W PEP	44.95
SWT-2	70cm compact antenna tuner, 200W PEP	44.95
TU-3	Tone encoder for TM-201A/201B series	44.95
TU-3A	Tone encoder for TM-201B/211A series	44.95
TU-4C	Two frequency tone encoder for TW-4000A	59.95
TU-79	Prog. tone encoder for TR-7930/7950	49.95

Service manual for all transceivers and most accessories
(Manuals are available thru our Parts Dept. 213-639-9000)
5.00--20.00

Effective September 15,1987

KENWOOD

KENWOOD U.S.A. CORPORATION
COMMUNICATIONS & TEST EQUIPMENT GROUP
2201 E. Dominguez St., Long Beach, CA 90810
Telephone: (213) 639-9000, Service (213)639-7140

SUGGESTED LIST PRICE

EFFECTIVE: SEPTEMBER 15, 1987

* * *

TS-940S SERIES

		LIST PRICE
TS-940S/AT	160-10M, QSK, built-in auto AT	2,349.95
TS-940S	Same as above, but without AT-940	2,119.95
AT-940	160-10M automatic antenna tuner	229.95
VS-1	Voice synthesizer unit	54.95
SP-940	External speaker w/ audio filter	99.95
YG-455C-1*	500Hz CW filter for 455kHz IF	129.95
YG-455CN-1*	250Hz CW filter for 455kHz IF	149.95
YK-88C-1*	500Hz CW filter for 8.83MHz IF	89.95
YK-88A-1*	6kHz AM filter for 8.83MHz IF	79.95
SO-1*	Commercial stability TCXO(mod. req.)	209.95

*NOTE: Also for TS-930S series

TS-930S SERIES

TS-930S/AT	160-10M, built-in auto AT	1,999.95
AT-930	80-10M automatic antenna tuner	229.95
SP-930	External speaker w/ audio filter	99.95

TS-830S SERIES

TS-830S	160-10M, 2x6146B final, VBT, notch	1,199.95
VFO-240	Remote VFO	219.95
AT-230	160-10M antenna tuner	249.95
SP-230	External speaker w/ audio filter	89.95

TS-440S SERIES

TS-440S/AT	160-10M, QSK, built-in auto AT	1,299.95
TS-440S	Same as above but w/o AT-440	1,099.95
AT-440	80-10M automatic antenna tuner	199.95
PS-50*	Heavy duty power supply, 13.8V 20A continuous	224 95
PS-430*	DC power supply, 13.8V 20A intermittent	189.95
SP-430*	External speaker	59.95
MB-430*	Mobile mount	29.95
AT-250*	160-10M automatic antenna tuner	399.95
AT-130*	80-10M compact antenna tuner	199.95
TU-8	Programmable tone encoder unit	36.95
VS-1	Voice synthesizer unit	54.95

*NOTE Also for TS-430S

TS-430S SERIES

TS-430S	160-10M, digital VFOs, solid state	899.95
PS-430	DC power supply	189.95
FM-430	FM unit	59.95

R-5000/R-2000 SERIES

R-5000	100kHz-30MHz general coverage receiver	949.95
VC-20	VHF converter, 108-174MHz	199.95
VS-1	Voice synthesizer	54.95
DCK-2	DC cable kit w/ cigar plug	14.95
R-2000	150kHz-30MHz general coverage receiver	699.95
VC-10	VHF converter, 118-174MHz	189.95
DCK-1	DC cable kit	7.95

HF ACCESSORIES

TL-922A	160-15M linear amplifier, 2KW PEP	1,599.9
SM-220	Station monitor, 10MHz scope	449.9
BS-8	SM-220 pan display for TS-940S/830S	99.9
FM-430	FM-unit for TS-430S	59.9
MB-100	Mobile mount for TS-130S/660	39.9
PS-30	DC power supply for TS-130S/430S	189.9
PS-20	DC power supply for TS-660/670	89.9
VFO-120	Remote VFO for TS-130S/530SP/830S	164.9
VOX-4	VOX, speech processor for TS-660/670	64.9
YG-455C	500Hz CW filter for TS-830S/R-2000	119.9
YG-455CN	250Hz CW filter for TS-830S/R-2000	139.9
YK-88A	6kHz AM filter for TS-430S/670/660	69.9
YK-88A-1	6kHz AM filter for TS-940S/R-5000	79.9
YK-88C	500Hz CW filter for TS-440S/430S/830/530/670	79.9
YK-88CN	270Hz CW filter for TS-440S/430S/830/530/670	79.9
YK-88S	2.4kHz SSB filter for TS-440S/R-5000	79.9
YK-88SN	1.8kHz SSB filter for TS-440S/430S/530/R-5000	79.9

TH-21/31/41 SERIES

TH-21BT	2M pocket HT w/ DTMF & sub-tone	279.9
TH-21A	Same as above but w/o DTMF & tone	239.9
TH-31BT	220MHz pocket HT w/ DTMF & tone	299.9
TH-41BT	440MHz pocket HT w/ DTMF & tone	299.9
TH-41A	Same as above but w/o DTMF & tone	249.9
AJ-3	Thread-loc to BNC	8.95
BC-2	Wall charger for PB-21H	16.95
BC-6	2-pack quick charger for PB-21/21H	99.95
BH-3	Belt hook for TH-21 series	4.95
BT-2	AAA battery case	12.95
DC-21	DC-DC converter for 12V operation	26.95
EB-2	External C battery case	19.95
HMC-1	Headset w/ VOX	49.95
PB-21	NiCd battery pack, 180mAH	20.95
PB-21H	Extra-life NiCd battery pack, 500mAH	39.95
RA-6	Extra flex antenna for TH-21BT/AT/A	12.95
RA-7	Extra flex antenna for TH-41BT/AT/A	12.95
RA-8A	2M StubbyDuk for TH-21BT/AT/A	12.95
RA-9A	220MHz StubbyDuk for TH-31BT/AT/A	12.95
RA-10A	440MHz StubbyDuk for TH-41BT/AT/A	12.95
SC-8	Softcase w/ belt hook for "A" models	15.95
SC-8T	Same as above but for "BT/AT" models	15.95
SMC-30	Speaker microphone	42.95
TU-6	Subtone unit for TH-21A and AT series	36.95
VB-2530	2M 25W RF amplifier for TH-21BT/AT/A	119.95

TH-215A/205AT SERIES

TH-215A	2M HT, 141-163MHz, 2.5W, 5W option	359.95
TH-205AT	2M affordable HT, 141-163MHz, 2.5W	279.95
TH-315A	220MHz version of TH-215A	379.95
TH-415A	70cm version of TH-215A	379.95
BC-7	Rapid charger for PB-1/2/3/4	99.95
BC-8	Compact charger for PB-1/2/3/4	44.95
BH-5	Swivel mount	24.95
BT-5	AA battery case	15.95
LH-4	Leather case for use with PB-2/3	46.95
LH-5	Leather case for use with PB-1/4	49.95
MB-4	Mobile bracket	12.95
PB-1	12V, 800mAH NiCd pack for 5W	76.95
PB-2	8.4V, 500mAH NiCd pack for 2.5W	44.95
PB-3	7.2V, 800mAH NiCd pack for 1.5W	54.95
PB-4	7.2V, 1600mAH NiCd pack for 1.5W	79.95
PG-2V	Extra DC cable for 12V operation	6.95
PG-3D	Filtered cigar lighter cord for 12V operation	21.95
RA-3	2M telescopic antenna w/ BNC	16.95
RA-5	2M/440MHz dual-band telescopic ant	20.95
RA-8B	2M StubbyDuk w/ BNC	14.95
RA-9B	220MHz StubbyDuk w/ BNC	14.95
RA-10B	440MHz StubbyDuk w/ BNC	14.95
SC-12	Soft case for use with PB-2/3	26.95
SC-13	Soft case for use with PB-1/4	26.95
SMC-30	Speaker microphone(also for TR-2600A/TH-21)	42.95
TSU-3	CTCSS encoder/decoder for TH-205AT	39.95
TSU-4	CTCSS tone decoder for TH-215A	39.95
VB-2530	2M 25W power amp(1-4W input range)	119.95

Swan's Success Story:

100MX Power House

The Field-Proven Rig the Whole World's Talking About.

235 Watt PEP
and CW on
ALL Bands

Price? You won't
believe it! Just ask
your dealer.

All solid state quality American
construction, with epoxy glass
boards to withstand the
rugged mobile environment.

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AF
RF
MIC GAIN
MODE
LSB
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CW
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Bands

KENWOOD'S TR-2400

...synthesized, BIG LCD, 10 memories, scanning...and more!

Kenwood TR-2400...It's a synthesized 2 meter hand-held transceiver...the answer to any Amateur's operating requirements! Its many advanced features include:

TX OFFSET
OPEN
ON
BUSY
S.TONE
NORM

CONVENIENT TOP CONTROLS

- **LCD digital readout**
- Readable in direct sunlight (better than LEDs)
- Readable in the dark (with lamp switch)
- Virtually no current drain (much less than LEDs) and display stays on
- Shows receive and transmit frequencies and memory channel
- **10 Memories** (always retained with battery backup)
- **Automatic memory scanning** (for "busy" or "open" channels)
- **Mode switch for the following operations:**
- Simplex
- Standard repeater by offsetting the transmit frequency + 600 kHz or − 600 kHz
- Repeater with nonstandard splits by offsetting the transmit frequency to any frequency stored in memory 10
- **REVERSE** momentary switch for the following applications:
- Checking signals on the input of a repeater
- Determining if a repeater is "upside down"
- **Built-in Touch-Tone generator** using 16-button keyboard
- **Keyboard selection** of 5-kHz channels from 144.000 to 147.995 MHz
- **UP/DOWN manual scanning** and operation from 143.900 to 148.495 MHz in single or fast continuous 5-kHz steps. Even operates on MARS repeaters within this range by using memory 10 for transmit offset frequency.
- **LCD "arrow" indicators**
- "ON AIR"
- Memory recall
- Battery status
- Lamp switch on
- **Two lock switches** to prevent accidental frequency change and accidental transmission
- **Subtone switch** (subtone module not Kenwood-supplied)
- **BNC antenna connector**
- **1.5 watts RF output**

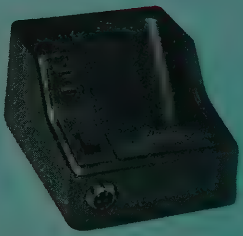
KENWOOD
STOP

The TR-2400 comes with the following standard accessories:

- Flexible rubberized antenna with BNC connector
- Nicad battery pack
- Battery charger

Optional accessories include:

- Leather case
- Base Stand (for quick charge and easy base-station operation)
- DC (automobile) quick charger



ST-1 BASE STAND (OPTIONAL)

(Subject to FCC approval)

SEE YOUR AUTHORIZED KENWOOD DEALER FOR MORE INFORMATION ON THE TR-2400.

KENWOOD
...pacesetter in amateur radio

TRIO-KENWOOD COMMUNICATIONS INC.
1111 WEST WALNUT/COMPTON, CA 90220

ALL-MODE TRANSCEIVERS

TM-441A

● 440MHz single-band operation ● 20 multi-function memory channels plus call channel ● Multi-scan capability ● Selectable CTCSS tone encoder ● Multi-function microphone supplied

TM-241A

● 144MHz single-band operation ● 20 multi-function memory channels plus call channel ● Multi-scan capability ● Selectable CTCSS tone encoder ● Multi-function microphone supplied

TM-331A

● 220MHz single-band operation ● 20 memory channels with multi-scan functions ● Auto repeater offset (+1.6MHz) ● Multi-function microphone supplied

TS-790A

● 144MHz/440MHz dual-band operation ● 1200MHz unit (opt.) ● All-mode operation ● Satellite communications with Doppler effect frequency correction ● 59 multi-function memory channels with lithium battery back-up

TR-751A/851A

● 144MHz (TR-751A) & 430MHz (TR-851A) single-band operation ● All-mode (FM, USB, LSB & CW) operation ● 10 memory channels with 5-year lithium battery back-up ● Noise blanker ● All-mode squelch

ALL-Mode Transceivers

	TS-790A	TR-851A	TR-751A
Frequency Range*	144 MHz: 144 – 148 MHz 440 MHz: 430 – 450 MHz 1200 MHz: 1240 – 1300 MHz	430 – 440 MHz	144 – 148 MHz
Mode	A1a (CW), J3E (SSB), F3E (FM)	A3J (SSB), A1 (CW) F3/F2 = WITH DCL system (FM)	A3J (SSB), A1 (CW) F3/F2 = WITH DCL system (FM)
RF Output Power	FM/CW: 45W (144 MHz) 40W (440 MHz) 10W (1200 MHz) SSB: 35W (144 MHz) 30W (440 MHz) 10W (1200 MHz)	HI = 25W LO = 5W	HI = 25W LO = 5W
Selectivity	CW•N = More than 500 Hz (–6 dB) Less than 2 kHz (–60 dB) SSB/CW = More than 2.1 kHz (–6 dB) Less than 4.8 kHz (–60 dB) FM = More than 12 kHz (–6 dB) Less than 24 kHz (–60 dB)	SSB/CW = More than 2.2 kHz (–6 dB) Less than 4.8 kHz (–60 dB) FM = More than 12 kHz (–6 dB) Less than 24 kHz (–60 dB)	SSB/CW = More than 2.2 kHz (–6 dB) Less than 4.8 kHz (–60 dB) FM = More than 12 kHz (–6 dB) Less than 24 kHz (–60 dB)
Sensitivity	SSB/CW = More than 12 dB SINAD Less than 0.16µv FM = 12 dB SINAD Less than 0.22µv	SSB/CW = 10 dB S + N/N Less than 0.11µv FM = 12 dB SINAD Less than 0.18µv	SSB/CW = 10 dB S + N/N Less than 0.13µv FM = 12 dB SINAD Less than 0.2µv
Dimensions mm (inch) (Projections not included)	330(13.0)W x 120(4.72)H x 330(13.0)D mm (inch)	180(13.0)W x 60(2.36)H x 215(8.46)D mm (inch)	180(7.09)W x 60(2.36)H x 195(7.68)D mm (inch)

*Specifications are guaranteed for Amateur band only

Conversions

Elec. Specialists - Wilmington
800 688-0073   919-791-8885

Kenwood Options—Precision Tools for the Discerning DXer

SM-230 Station Monitor

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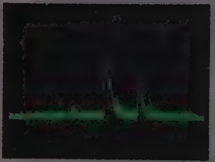

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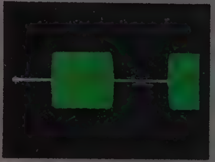


SP-950
SW-2100
KENWOOD
MC-90
SM-230

FM MOBILE TRANSCEIVERS

TM-732A

- 144MHz/440MHz dual-band operation
- Dual receive on same band (VHF + VHF or UHF + UHF) with one antenna
- Improved cross band repeater function
- 50 split memory channels with multi-scan functions
- Detachable front panel for remote control

TM-741A

- 144MHz/440MHz dual-band operation
- 28MHz, 50MHz, 220MHz, & 1200MHz FM units (opt.) for tri-band operation
- Dual/triple receive
- 101 memory channels per band
- Detachable front panel for remote control

TM-631A

- 144MHz/220MHz dual-band operation
- Dual-channel watch
- Cross band repeater function
- 30 memory channels with multi-scan functions
- Separate speaker terminals & squelch

TM-641A

- 144MHz/220MHz dual-band operation
- 28MHz, 50MHz, 440MHz, & 1200MHz FM units (opt.) for tri-band operation
- Dual/triple receive
- 101 memory channels per band
- Detachable front panel for remote control

TM-541A

- 1200MHz single-band operation
- Max. 10 watts RF output
- 20 multi-function memory channels plus call channel
- Multi-scan capability
- Automatic lock tuning (ALT) function

FM Mobile Transceivers

	TM-741A	**TM-641A**	**TM-732A**	**TM-631A**
Frequency Range*	144 MHz: TX 144—148 MHz RX 118—174 MHz 440 MHz: 438—450 MHz	144 MHz: TX 144—148 MHz RX 118—174 MHz 220 MHz: TX 220—225 MHz RX 215—235 MHz	144 MHz: TX 144—148 MHz RX 118—174 MHz 438—450 MHz 440 MHz: TX 438—450 MHz RX 438—450 MHz 136—174 MHz	144 MHz. TX 144—148 MHz RX 136—174 MHz 220 MHz: TX 220—225 MHz RX 215—230 MHz
Mode	F3E (FM)	F3E (FM)	F3E (FM) [A3E (AM) RX 118— 136 MHz]	F3E (FM)
RF Output Power	144 MHz: HI = 50W MID = 10W LO = 5W approx. 440 MHz: HI = 35W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 220 MHz: HI = 25W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 440 MHz: HI = 35W MID = 10W LO = 5W approx.	144 MHz: HI = 50W LO = 5W approx. 220 MHz. HI = 25W LO = 5W approx.
Selectivity	144 MHz/440 MHz: More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)	144 MHz/220 MHz: Less than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)	144 MHz/440 MHz Less than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)	144 MHz/220 MHz: More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)
Sensitivity	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0 16μV
Dimensions mm (inch) (Projections not included)	150(5.91)W × 50(1.97)H × 175(6.89)D mm (inch)	150(5.91)W × 50(1.97)H × 175(6.89)D mm (inch)	140(5.52)W × 40(1 58)H × 160(6.30)D mm (inch)	150(5.91)W × 50(1.97)H × 205(8 07)D mm (inch)

	TM-541A	**TM-441A**	**TM-241A**	**TM-331A**
Frequency Range*	1200 MHz: 1240—1300 MHz	440 MHz. 438—450 MHz	144 MHz: TX 144—148 MHz RX 118—174 MHz	220 MHz: TX 220—225 MHz RX 215—230 MHz
Mode	F3E (FM)	F3E (FM)	F3E (FM)	F3E (FM)
RF Output Power	1200 MHz: HI = 10W LO = 1W approx.	440 MHz: HI = 35W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx.	220 MHz: HI = 25W MID = 10W LO = 5W approx.
Selectivity	1200 MHz: More than 12 kHz (−6 dB) Less than 36 kHz (−60 dB)	440 MHz: More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)	144 MHz: More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)	220 MHz: More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB)
Sensitivity	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0.16μV	12 dB SINAD less than 0 16μV
Dimensions mm (inch) (Projections not included)	140(5.51)W × 40(1.57)H × 160(6.30)D mm (inch)	140(5.51)W × 40(1.57)H × 160(6.30)D mm (inch)	140(5.51)W × 40(1.57)H × 160(6.30)D mm (inch)	140(5.51)W × 40(1.57)H × 160(6.30)D mm (inch)

*Specifications are guaranteed for Amateur band only

- **Selectable IF filter with memory**

The operator can choose the ideal IF bandwidth depending on mode, band and QRM conditions. The setting can be stored in memory for later recall.

First-class interference reduction

- **IF shift function**

This moves the IF passband away from interfering signals while maintaining focus on the target signal, thus maximizing gain and signal-to-noise ratio.

- **AF notch filter**

A tunable AF notch filter with sharp cutoff characteristics minimizes undesired audio frequencies with surgical-strike precision.

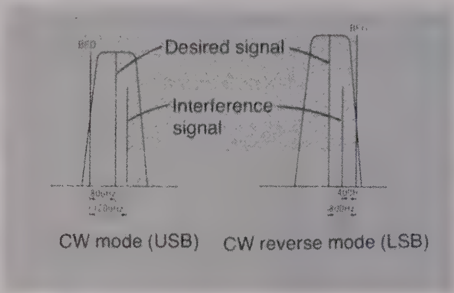
- **Dual-mode noise blanker**

NB-1 eliminates short duration pulse-type interference such as ignition noise, while NB-2 rejects longer duty cycle noise, such as "Russian woodpecker" interference.

High-caliber CW operations

- **Reverse mode**

In reverse mode reception is moved away from an interfering signal, so the operator can tune in the target signal from above or below.



- **Pitch control**

Dedicated CW operators will love this feature which permits the CW pitch to be varied in 50Hz steps, from 400 to 800Hz.

Impressive split-frequency operations

- **TF-SET and ΔF keys**

Split-frequency operations are greatly facilitated by the TF-SET (transmit frequency set) key, which can be programmed with the ΔF key so that the frequency difference is indicated on the numeric display.

100 memory channels with multi-scan functions

There are 100 memory channels — all battery-backed and non-volatile — for storing transmit and receive parameters such as frequency, mode, filter setting, AIP on/off. Of these, the upper 10 memory channels can also be used to hold both limits for the programmable band scan, programmable VFO and store mode, and related data.

Three different scan modes

The operator can scan any or all 100 memory channels, skipping selected channels with a lock-out feature. Group scan divides the 100 channels into 10 groups of 10 for separate scanning. And programmable band scan automatically covers from channel 90 through 99 within the predetermined band limits.

Simple data transfer between two transceivers

If two Kenwood transceivers are hooked up for dual-receive or master/slave operations, data can be transferred automatically via a special cable.

Digital bar meter and multi-function display

All-mode squelch circuit

All-mode RF output power control

Switchable AGC circuit (SLOW/FAST)

Direct frequency entry via numeric keypad

TS-690S

DSP-100

MC-60A SP-23 TS-450SAT PS-53

KENWOOD

HF TRANSCEIVERS / RECEIVERS

14.195.00 kHz
0.00 kHz
HF TRANSCEIVER TS-950S
TONE
KENWOOD
DUAL FREQUENCY RECEIVE
MEMORY

Leading-edge technology expands the envelope of HF communications

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DUAL FREQUENCY RECEIVE
DIGITAL
14.195.00
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KENWOOD

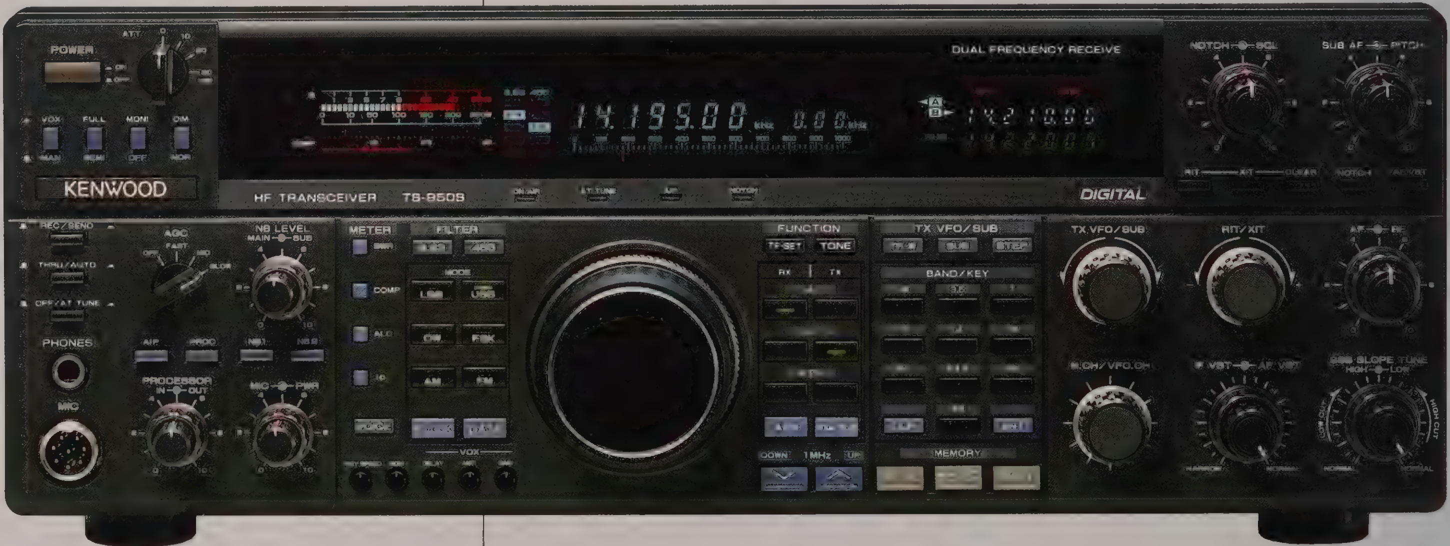
Kenwood's High-Performance HF Transceivers

Freedom and the spirit of challenge. Continuous refinements in electronic engineering have given added impetus to the evolution of Amateur Radio. New technology, new techniques and new bands offer expanded horizons to today's DX operators and contesters. And for maximum advantage they are looking to Kenwood. No wonder: first-class R&D combines with years of experience in digital processing to make our transceiver technology second to none. From the competition-class TS-950S to the user-friendly TS-140S, Kenwood's impressive lineup of HF transceivers offers prime-time performance plus outstanding quality and reliability.

HF TRANSCEIVER
TS-950S

For the Ultimate in DX Performance: Kenwood's Preeminent TS-950S

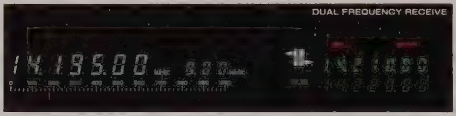
The prestigious TS-950S demonstrates the unparalleled performance that results when the latest innovations in Amateur Radio are brought together in an expertly engineered package from Kenwood. Dual-frequency receive capability, a programmable automatic antenna tuner, superior interference reduction measures, 100 memory channels, and versatile scanning functions are just some of the advantages offered by this top-ranked HF transceiver. Yet there is more: the TS-950S Digital model incorporates a digital signal processor (optional for the TS-950S) to provide signal modulation and filtering of unerring precision — a world first.



160m to 10m amateur band operation with 100kHz to 30MHz general coverage receiver

Dual-frequency receive capability

For maximum convenience when operating split frequencies, the TS-950S can simultaneously receive two frequencies, which can be within 500kHz of each other.



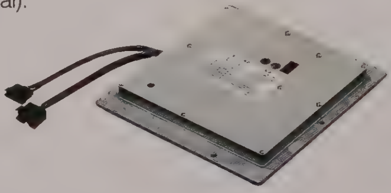
- **Independent IF circuits for main & sub receivers**
- **Independent frequency selectors with adjustable step size**

Using the STEP key, tuning increments of 10Hz or 100Hz can be selected separately for the main and sub receivers.

- **Independent AF controls for main & sub receivers**
- **Separate sub-receiver frequency display**

Digital signal processor

Kenwood's digital signal processor offers a quantum leap in transmitter performance. The DSP-10 is provided as an option for the TS-950S (factory-installed on the TS-950S Digital).



- **Outstanding spurious response and unwanted-sideband suppression**
- **Selectable sound quality**

Flat frequency response means clean, high-quality sound. The operator can select any of 4 possible sound quality levels.

- **Digital filtering eliminates key clicks**
- **Superior FSK transmission circuit**

The data control oscillator provides rapid switching (50bps) for the cleanest FSK signal. 170, 200, 425 or 850Hz FSK shift can be selected.

- **Digital AF filter**

Synchronized with SSB IF slope tuning, the built-in digital AF filter provides optimum response.

Automatic antenna tuner

For maximum operator convenience, the TS-950S is equipped with a completely automatic antenna tuner covering all amateur bands. For easy coupling, this built-in tuner is controlled by a microprocessor that has been preprogrammed to rapidly tune for minimum SWR.

High power, heavy duty cycle design

Reliability is enhanced with the high-voltage power transistors in the 150-watt final section, large aluminum heat sink, and powerful cooling fan.

First-rate receiver performance and sensitivity

- **Noise blanker level controls**

Two front-panel controls enable independent adjustment of main- and sub-band noise amplifier threshold levels to maximize noise blanker effectiveness.

- **Multi-drive BPFs**

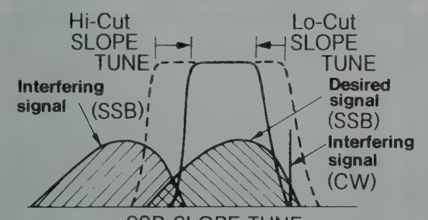
A new RF amplifier section and 15 band-pass filters — including 10 BPFs for amateur bands — offer outstanding two-signal characteristics.

- **Dyna-Mix™ high-sensitivity direct mixing system for enhanced dynamic range**
- **High-performance IF filters for maximum selectivity control**
- **Selectable IF filter with memory**

Innovative interference reduction

- **SSB IF slope tuning**

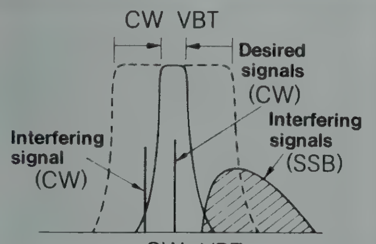
For LSB and USB modes, independent high-cut and low-cut controls permit the operator to select the ideal IF passband width quickly and easily.



SSB SLOPE TUNE

- **IF VBT**

With the variable-bandwidth tuning control, passband width can be varied without affecting the center frequency.



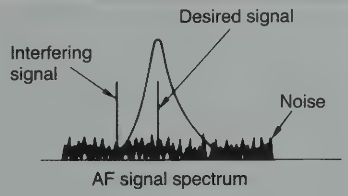
CW VBT

- **AF VBT**

In CW and FSK modes, the AF VBT control enables the operator to avoid interfering signals while maintaining optimal signal-to-noise ratio.

- **AF tune for CW mode**

During CW operations, the AF tune and pitch controls are automatically enabled. With a center frequency of 800Hz and a tunable range of greater than ±400Hz, the AF tune circuit reduces interference and white noise, thus providing a peak tuning characteristic for the audio signal.



AF tune operation

•The AF TUNE function reduces interfering signals and white noise.
•This function should only be used during operation in the CW mode.

- **High-precision IF notch filter**

Available for all modes except FM, this tunable notch filter provides approximately 45dB of attenuation in a very narrow frequency range.

- **Dual-mode noise blanker ("pulse" & "woodpecker") with level control**

Impressive split-frequency operations

- **Split-frequency operation even on memory channels**

For greater convenience, split-frequency operation may be selected from VFO A, VFO B or from memory. LEDs confirm the selection.

- **TF-W (transmit frequency watch)**

During split-frequency operations, the sub-receiver frequency can be set to the transmit VFO frequency by activating the TF-W function.

- **TF-SET (transmit frequency set)**

While the TF-SET key is depressed, the main dial can be used to adjust the transmit frequency without affecting the receive frequency.

High-performance CW functions

- **Full break-in and semi break-in**
- **Electronic keyer circuit with weighting control**

- **Variable pitch control**

The CW pitch control shifts the 4th IF passband in the demodulator circuit while raising or lowering the pitch of the audible beat frequency.

100 memory channels

The TS-950S is equipped with 100 memory channels for independent storing of transmit and receive parameters such as frequency, mode, filter setting, auto-tuner and tone frequency. The upper 10 memory channels can be used to establish the upper and lower limits for the programmable band marker.

User-friendly scan functions

Any or all of the 100 memory channels may be scanned, with selected channels skipped using the programmable memory channel lock-out function. The TS-950S can scan up to 10 groups automatically within the limits specified by the programmable band marker, and scan speed can be continuously varied.

4-step (0, 10, 20 or 30dB) RF attenuator

Switchable AGC circuit (OFF/SLOW/MID/FAST)

All-mode squelch circuit

Digital PLL system for high frequency stability

10 direct band access keys

Multi-function fluorescent-tube display and digital bar meter

All-mode data communications

All-mode RF output power control

RF clipper-type speech processor

Adjustable transmitter monitor circuit (SSB, FM and AM modes)

Display dimmer switch

IF-232C interface for computer control

Built-in AC power supply and 10cm (4″) speaker

SW-2100
MC-60A
SP-950
TS-950SD
SM-230
TL-922A

HF TRANSCEIVER

TS-850S

For Global Reach: Kenwood's Competition-Class TS-850S

A rewarding experience. Kenwood's renowned digital technology endows the TS-850S HF transceiver with specs that put it firmly in the top ranks of Amateur Radio equipment. Features include a preprogrammed automatic antenna tuner (built-in or optional), Kenwood's Advanced Intercept Point system for enhanced dynamic range, 100 memory channels with three scan modes, a Direct Digital Synthesizer (DDS) and digital PLL system to permit ultra-fine (1Hz) tuning, plus an optional digital signal processor — the DSP-100. Impressive credentials, but the TS-850S also offers reassuring operating ease.

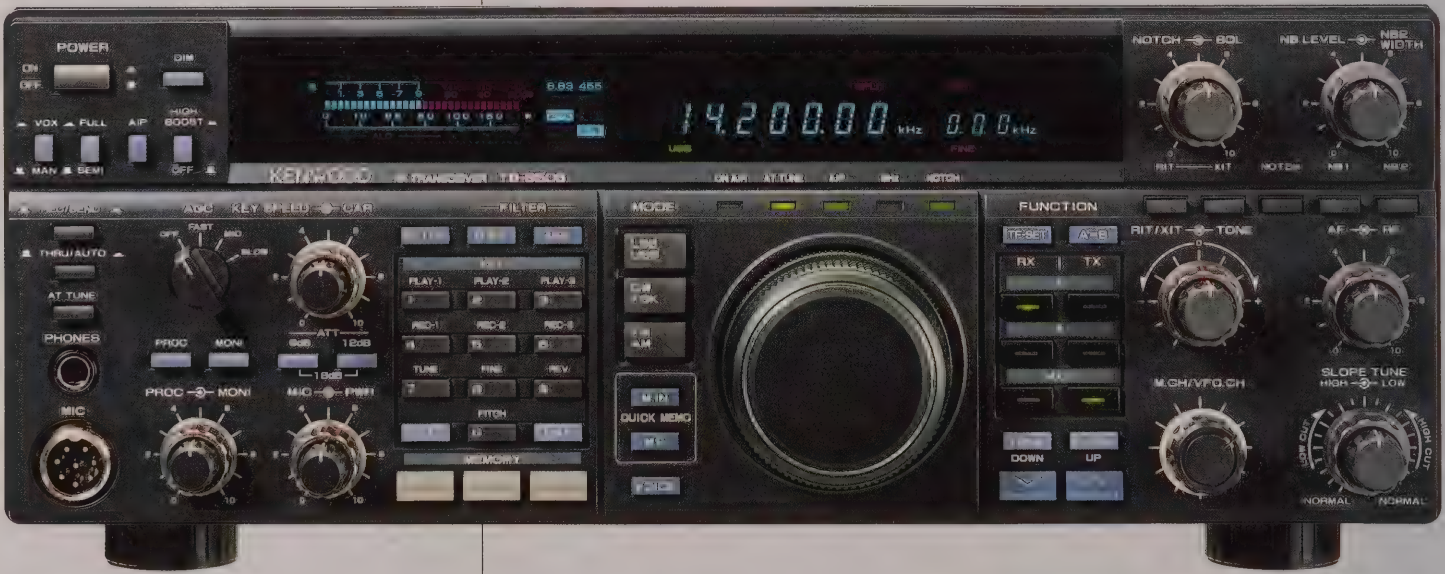
160m to 10m amateur band operation with 100kHz to 30MHz general coverage receiver

Kenwood's AIP system for clearer reception

AIP (Advanced Intercept Point) is an exclusive circuit design that provides superior dynamic range. The use of two selective RF amplifiers — one with large gain for enhanced sensitivity, the other with small gain for better intermodulation characteristics — results in a significantly reduced noise floor level.

Automatic antenna tuner (built-in or optional)

For operator convenience, the TS-850S can be supplied with a completely automatic antenna tuner covering all amateur bands from 160 through 10 meters. This is factory-installed or ordered separately as an option. The microprocessor that controls the tuner has been preprogrammed to assure minimum SWR.


POWER
ON
OFF
DIM
VOX
FULL
AIP
HIGH BOOST
MAN
SEMI
OFF
14.200.00 kHz
0.00 kHz
NOTCH
NB LEVEL
NB2 WIDTH
KENWOOD
TS-850S
AGC
KEY SPEED
CAR
FILTER
MODE
FUNCTION
THRU/AUTO
AT TUNE
PHONES
MIC
PROC
MONI
ATT
6dB
12dB
18dB
PLAY-1
PLAY-2
PLAY-3
REC-1
REC-2
REC-3
TUNE
FINE
REV
PITCH
MEMORY
QUICK MEMO
RIT/XIT
TONE
AF
RF
RX
TX
M.CH/VFO.CH
SLOPE TUNE
HIGH
LOW
LOW CUT
HIGH CUT
NORMAL
NORMAL
DOWN
UP

Optional digital signal processor

For greater signal purity, the TS-850S can be equipped with the optional DSP-100 digital signal processor. Among the many benefits of converting the signal into a digital waveform are increased suppression of unwanted sidebands during SSB operation and improved CW operation.

Ultra-fine (1Hz) tuning

The TS-850S uses a microprocessor-controlled Direct Digital Synthesizer (DDS) and digital PLL system to control the frequency in 1Hz steps.

Heavy duty cycle design

A large, die-cast aluminum heat sink and high-efficiency cooling fan help to assure increased reliability — especially important for digital mode operation.

Outstanding receiver performance

- **High sensitivity**

Special circuits automatically boost signal reception in the 24.5 to 30MHz range.

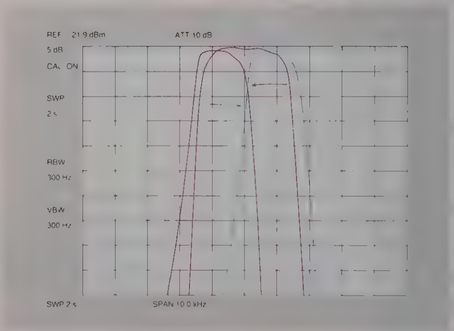
- **Selectable IF filter with memory**

To suit mode, band and QRM conditions, the optimum filter bandwidth can be selected using the front-panel 8.83MHz and 455kHz filter keys.

Superior interference reduction

- **IF slope tuning (for SSB, CW and FSK modes)**

The low- and high-frequency slopes of the IF passband can be adjusted independently to obtain maximum signal intelligence.



- **Tunable IF notch filter**

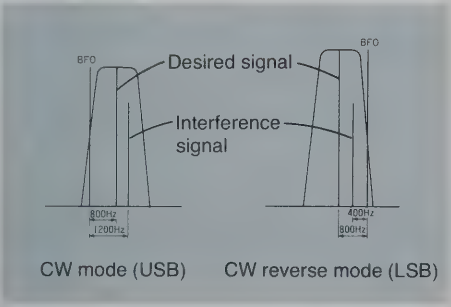
For all modes except FM, this enables highly selective filtering of an interfering signal with approximately 40dB of attenuation.

- **Dual-mode noise blanker ("pulse" & "woodpecker") with level control**

Dependable CW operating features

- **Variable pitch control and reverse mode**

Variable pitch control shifts the 4th IF passband in the demodulator circuit while raising or lowering the pitch of the audible beat frequency. In reverse mode the pitch of interference competing with the CW signal is reversed, so the operator can approach the target from either side.


BFO
Desired signal
BFO
Interference signal
800Hz
1200Hz
400Hz
800Hz
CW mode (USB)
CW reverse mode (LSB)

- **Full break-in and semi break-in**
- **High-performance electronic keyer circuit**

The electronic keyer circuit has dynamic dot and dash memories controlled by a microprocessor. A weighting control allows tailoring of the CW waveform.

Superb split-frequency performance

- **Split-frequency operation even on memory channels**
- **TF-SET (transmit frequency set)**

When the TF-SET key is depressed, the main dial can be used to adjust the transmit frequency without affecting the receive frequency.

100 memory channels

There are 90 memory channels for independent storing of transmit and receive parameters — such as frequency, mode, filter setting, AIP data and tone frequency. An additional 10 channels are used to establish the upper and lower limits for the programmable band marker.

Easy-to-operate scan functions

All 100 memory channels are available for scanning. Programmable memory channel lock-out allows selected channels to be skipped during scan without data loss. Other features include group scan, programmable band scan (within the limits specified by the programmable band marker), and variable scan speed (using the RIT/XIT control knob).

Digital recording systems

The TS-850S offers CW and voice digital recording systems with remote control capability. Up to 50 characters can be stored in each of the 3 built-in CW memories, while an optional digital recording unit (DRU-2) allows transmission voice recording using 3 audio memories — 2 of 8 seconds, one of 16 seconds — for SSB, FM and AM calling.

All-mode RF output power control

RIT/XIT control (10Hz steps)

Adjustable transmit monitor circuit (SSB, AM and FSK modes)

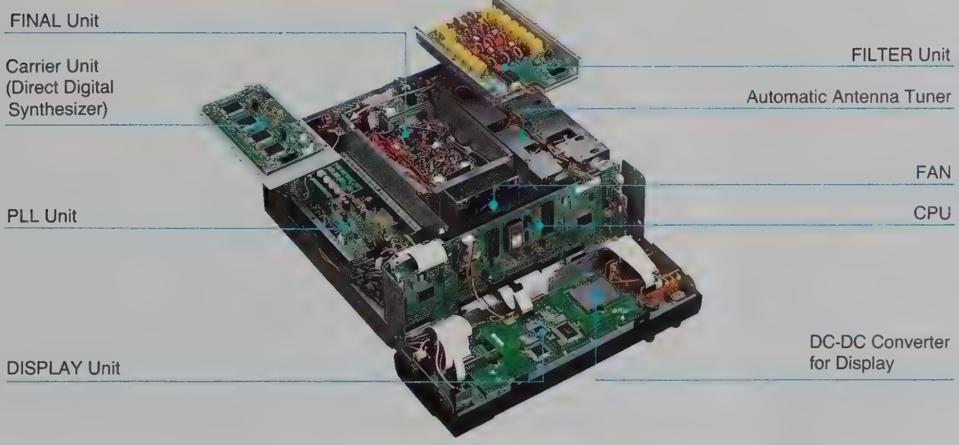
Large, multi-function LCD display and digital bar meter

Data transfer capability for master/slave applications

RF type speech processor

High-frequency TX boost function

4-step (0, 6, 12 or 18dB) RF attenuator


FINAL Unit
Carrier Unit (Direct Digital Synthesizer)
PLL Unit
DISPLAY Unit
FILTER Unit
Automatic Antenna Tuner
FAN
CPU
DC-DC Converter for Display

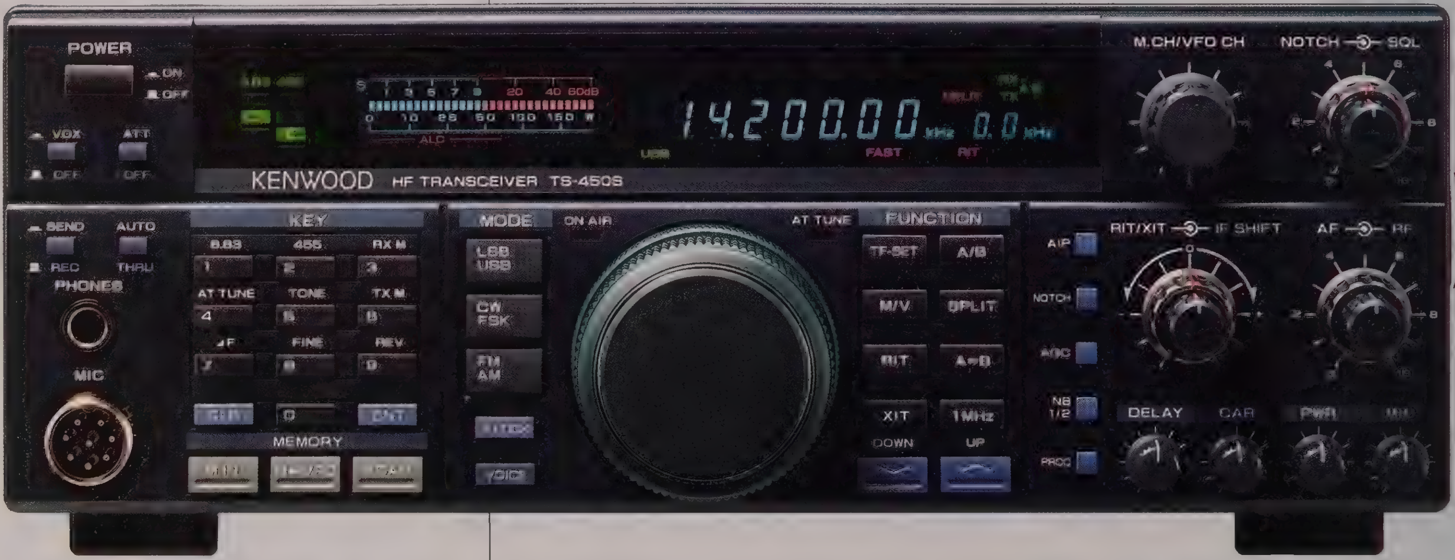
DSP-100
MC-60A
SP-31
TS-850S
PS-52

HF TRANSCEIVER

TS-450S/690S

For the New Challenge: Kenwood's High-Performance TS-450S/690S

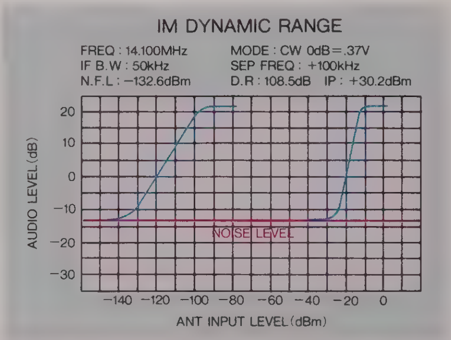
Kenwood's formidable TS-450S/690S can star in virtually any role with its 100W transmission capabilities on all nine amateur bands — in SSB, CW, AM, FM and FSK modes. Compact, lightweight construction makes this HF transceiver particularly suited for DX-peditions. Rugged reliability is matched with leading-edge electronics: automatic antenna tuner (built-in or option), Kenwood's AIP system for improved dynamic range, Direct Digital Synthesizer for fine (1Hz) tuning, and the optional DSP-100 digital signal processor. In addition, the TS-690S model is equipped with a separate antenna connector and 50W output power for operations in the 50MHz band.



160m to 10m amateur band operation with 500kHz to 30MHz general coverage receiver (TS-450S/690S), additional 6m amateur band operation with 50MHz to 54MHz coverage (TS-690S)

AIP system for clearer reception

AIP (Advanced Intercept Point) is a Kenwood-exclusive circuit design that improves the receiver's intermodulation dynamic range to 108dB. Two RF amplifiers — one with large gain for enhanced sensitivity, the other with small gain for better intermodulation characteristics — assure greatly reduced noise floor level.



Automatic antenna tuner (built-in for TS-450SAT)

The AT version of the TS-450S features a built-in antenna tuner with microprocessor control that automatically establishes the optimum antenna match between 20 and 150 ohms in the 80 through 10 meter band. A warning beep sounds if a match cannot be found. (For the TS-450S and TS-690S, this tuner is optional.)

Optional digital signal processor (DSP-100)

The DSP-100 digitally processes both incoming and outgoing signals for maximum intelligibility with minimum bandwidth. In SSB operation, unwanted sidebands can be effectively suppressed, while in CW mode the rise and decay times of CW waveforms can be tailored for optimum clarity.

Ultra-fine tuning (SSB, CW and FSK modes)

Thanks to the Direct Digital Synthesizer (DDS), the operator can fine-tune in 1Hz steps — particularly useful for HF packet and AMTOR data communications.

User-friendly Primary function

Beginners and mobile operators will welcome the Primary function, which deactivates all but the most frequently used controls to prevent operational errors.

Heavy duty cycle design

High-reliability components and a sophisticated cooling system assure circuit stability and make the TS-450S/690S sufficiently rugged for heavy duty cycle use.

Superior receiver performance and sensitivity

- **Triple conversion**

Special circuit design, including triple conversion, enhances sensitivity above 24.5MHz without affecting two-signal characteristics. This means better results when DXing and QSOing on the 24 to 30MHz band (24 to 50MHz with the TS-690S).

- **Selectable IF filter with memory**

The operator can choose the ideal IF bandwidth depending on mode, band and QRM conditions. The setting can be stored in memory for later recall.

First-class interference reduction

- **IF shift function**

This moves the IF passband away from interfering signals while maintaining focus on the target signal, thus maximizing gain and signal-to-noise ratio.

- **AF notch filter**

A tunable AF notch filter with sharp cutoff characteristics minimizes undesired audio frequencies with surgical-strike precision.

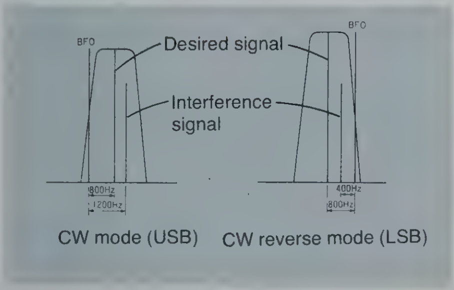
- **Dual-mode noise blanker**

NB-1 eliminates short duration pulse-type interference such as ignition noise, while NB-2 rejects longer duty cycle noise, such as "Russian woodpecker" interference.

High-caliber CW operations

- **Reverse mode**

In reverse mode reception is moved away from an interfering signal, so the operator can tune in the target signal from above or below.



- **Pitch control**

Dedicated CW operators will love this feature which permits the CW pitch to be varied in 50Hz steps, from 400 to 800Hz.

Impressive split-frequency operations

- **TF-SET and ΔF keys**

Split-frequency operations are greatly facilitated by the TF-SET (transmit frequency set) key, which can be programmed with the ΔF key so that the frequency difference is indicated on the numeric display.

100 memory channels with multi-scan functions

There are 100 memory channels — all battery-backed and non-volatile — for storing transmit and receive parameters such as frequency, mode, filter setting, AIP on/off. Of these, the upper 10 memory channels can also be used to hold both limits for the programmable band scan, programmable VFO and store mode, and related data.

Three different scan modes

The operator can scan any or all 100 memory channels, skipping selected channels with a lock-out feature. Group scan divides the 100 channels into 10 groups of 10 for separate scanning. And programmable band scan automatically covers from channel 90 through 99 within the predetermined band limits.

Simple data transfer between two transceivers

If two Kenwood transceivers are hooked up for dual-receive or master/slave operations, data can be transferred automatically via a special cable.

Digital bar meter and multi-function display

All-mode squelch circuit

All-mode RF output power control

Switchable AGC circuit (SLOW/FAST)

Direct frequency entry via numeric keypad

TS-690S

DSP-100

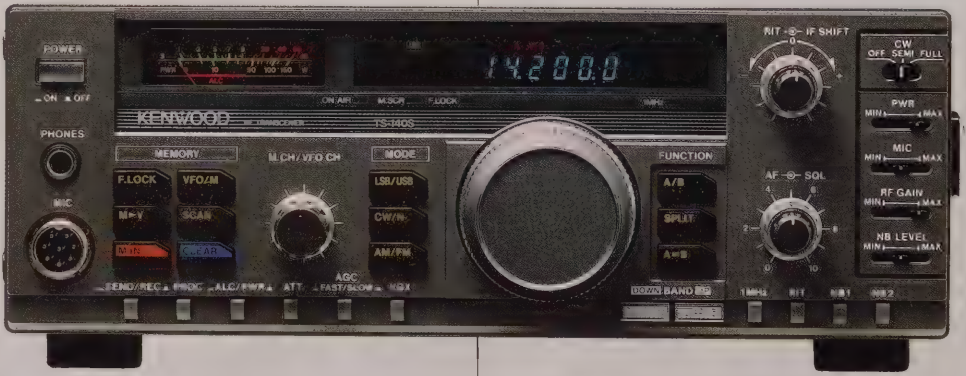
MC-60A SP-23 TS-450SAT PS-53

HF TRANSCEIVER

TS-140S

For Power-Packed Enjoyment: Kenwood's User-Friendly TS-140S

Introducing the compact communications companion. Equipped with a 500kHz to 30MHz general coverage receiver, Kenwood's TS-140S is the perfect entry-level HF transceiver. All-mode performance is enhanced by numerous user-oriented features — such as 31 memory channels, a dual-mode noise blanker with level control, CW full & semi break-in, built-in speech processor, and optional automatic antenna tuner. And yet the TS-140S is sufficiently light for DX-peditions and mobile use. What better way to experience the excitement of Amateur Radio?



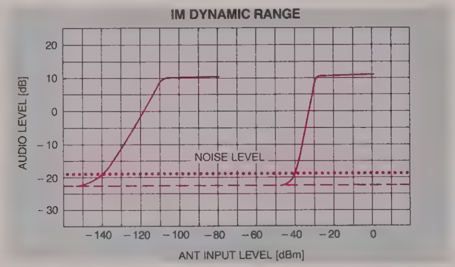
160m to 10m amateur band operation with 500kHz to 30MHz general coverage receiver

All-mode operation

The TS-140S offers USB, LSB, CW, AM and FM modes. Mode selection is easy using the front-panel keys, and International Morse Code confirms the selected mode.

Superior receiver dynamic range

Intermodulation dynamic range is an impressive 102dB. Special circuitry results in outstanding two-signal characteristics with an improved noise floor level.



10Hz-step dual digital VFOs

Dual digital VFOs — with a 10Hz step (100Hz in AM, FM modes) — operate independently to facilitate split-frequency or cross-band operations without the need for external VFOs. An A = B switch makes it possible to transfer tuning data (frequency, mode) from the active VFO into the inactive VFO.

Dependable interference reduction

- **Dual-mode noise blanker with level control**

The noise blanker, which offers two modes — NB-1 ("pulse") and NB-2 ("woodpecker") — can be tailored to match specific noise and signal level conditions.

- **IF shift circuit**

This moves the IF passband away from interfering signals while keeping the target signal positioned for optimum gain and signal-to-noise ratio.

Convenient memory functions

- **31 memory channels**

Important CW mode tuning data can be stored in the 31 memory channels. Of these, 10 memory channels store transmit and receive frequencies independently, allowing repeater or split-frequency operations. Another 11 memory channels establish the upper and lower limits for the programmable band marker.

- **Memory scroll**

This handy function may be used to check memory channel data or to find a vacant channel on the display without changing operating frequency or mode.

- **Non-volatile operating system with memory back-up**

Memory and VFO data are backed-up by an internal lithium battery, but basic operating functions are micro-coded to survive even total battery failure.

- **Memory scan and programmable band scan**

In addition to memory scan, the TS-140S provides programmable memory channel lock-out, programmable band scan, and continuous scan speed control.

CW full & semi break-in, plus VOX circuit

RIT (receiver incremental tuning)

20dB RF attenuator

Built-in speech processor with audio compression amplifier

Squelch circuit (FM mode)

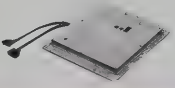
Switchable AGC circuit (SLOW/FAST)

Optional IF-232C/IF-10C interface for computer control

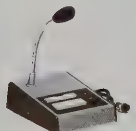
Optional HF automatic antenna tuner (AT-250)

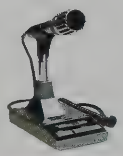
RF output power control

Optional Accessories for HF Transceivers

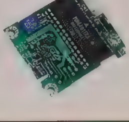
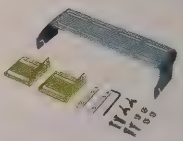
	SM-230	TL-922A	SW-2100	DSP-100	DSP-10	SP-950
	Station Monitor	**HF Linear Amplifier**	**SWR/POWER Meter (1.8～30MHz)**	**Digital Signal Processor Unit**	**Digital Signal Processor Unit**	**External Speaker**
						
TS-950S	●	●	●		●	●
TS-850S	●	●	●	●		
TS-690S		●	●	●		
TS-450S		●	●	●		
TS-140S		●	●			

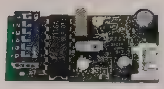
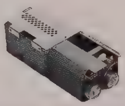
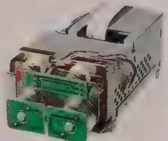
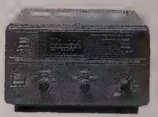
	SP-430	SP-50B	SP-41	SP-31	SP-23	PS-53
	External Speaker	**Mobile Speaker (8Ω)**	**Compact Mobile Speaker (4Ω)**	**External Speaker**	**External Speaker**	**Heavy Duty Power Supply (22.5A)**
TS-950S						
TS-850S				●		
TS-690S		●	●		●	●
TS-450S		●	●		●	●
TS-140S	●	●	●			

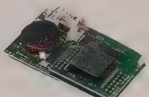
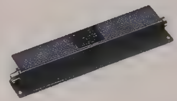
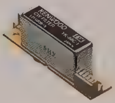
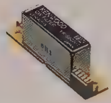
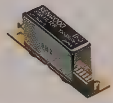
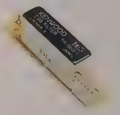
	PS-52	PS-33	PS-31	PS-430	MC-85	MC-80
	Heavy Duty Power Supply (22.5A)	**Power Supply (20.5A)**	**Power Supply (20.5A)**	**DC Power Supply (20A)**	**Multi-Function Desk-Top Microphone**	**Desk-Top Microphone**
						
TS-950S					●	●
TS-850S	●		●		●	●
TS-690S		●			●	●
TS-450S		●			●	●
TS-140S				●	●	●

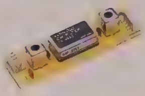
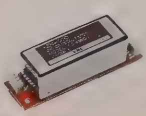
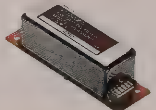
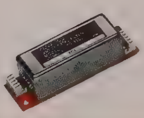
	MC-60A	MC-43S	SO-2	PC-1A	IF-232C	IF-10C
	Deluxe Desk-Top Microphone	**Hand Microphone**	**Superior Stability TCXO (Temperature compensated crystal oscillator)**	**Phone Patch Controller (Available only where phone patch operation is legal)**	**Interface Unit**	**Interface Unit**
					 **▲Works with IF-10C**	
TS-950S	●	●	●	●	●	
TS-850S	●	●	●	●	●	
TS-690S	●	●	●	●	●	
TS-450S	●	●	●	●	●	
TS-140S	●	●		●	▲	●

Optional Accessories for HF Transceivers

	VS-2	HS-6	HS-5	RM-1	PG-2X	MB-430
	Voice Synthesizer Unit	**Small Headphones (12.5Ω)**	**Deluxe Headphones (8Ω)**	**Remote Function Keypad**	**DC Cable**	**Mobile Mount**
						
TS-950S	●	●	●			
TS-850S	●	●	●	●	●	
TS-690S	●	●	●		●	●
TS-450S	●	●	●		●	●
TS-140S		●	●		●	●

	MA-5	TU-8	AT-850	AT-450	AT-300	AT-250
	5 Band Helical Type HF Mobile Antenna (covers 10, 15, 20, 40, 80 m)	**CTCSS Encoder Unit for 10 m repeater operation**	**Automatic Antenna Tuner Unit**	**Automatic Antenna Tuner Unit**	**Automatic Antenna Tuner**	**Automatic Antenna Tuner**
						
TS-950S						
TS-850S			●		●	
TS-690S	●	●		●	●	
TS-450S	●	●		●	●	
TS-140S	●	●				●

	DRU-2	LF-30A	YK-88C-1	YK-88CN-1	YK-88SN-1	YK-88S-1
	Digital Recording Unit	**Low-Pass Filter**	**500 Hz CW Filter for 8.83 MHz IF (Factory built-in for the TS-950SD)**	**270 Hz CW Filter for 8.83 MHz IF**	**1.8 kHz SSB Narrow Filter for 8.83 MHz IF**	**2.4 kHz SSB Filter for 8.83 MHz IF**
						
TS-950S		●	●	●	●	
TS-850S	●	●	●	●	●	●
TS-690S		●	●	●	●	●
TS-450S		●	●	●	●	●
TS-140S		●				

	YK-455C-1	YG-455C-1	YG-455CN-1	YG-455S-1
	500 Hz CW Filter for 455 kHz IF	**500 Hz CW Filter for 455 kHz IF (Factory built-in for the TS-950SD)**	**250 Hz CW Narrow Filter for 455 kHz IF (Factory built-in for the TS-950SD)**	**2.4 kHz SSB Filter for 455 kHz IF (Factory built-in for the TS-950SD)**
				
TS-950S	●	●	●	●
TS-850S	●	●	●	
TS-690S	●	●	●	
TS-450S	●	●	●	
TS-140S	●	●		

State of the Art: Kenwood's High-Sensitivity Receivers

WORLD RADIO
TV HANDBOOK
Billboard

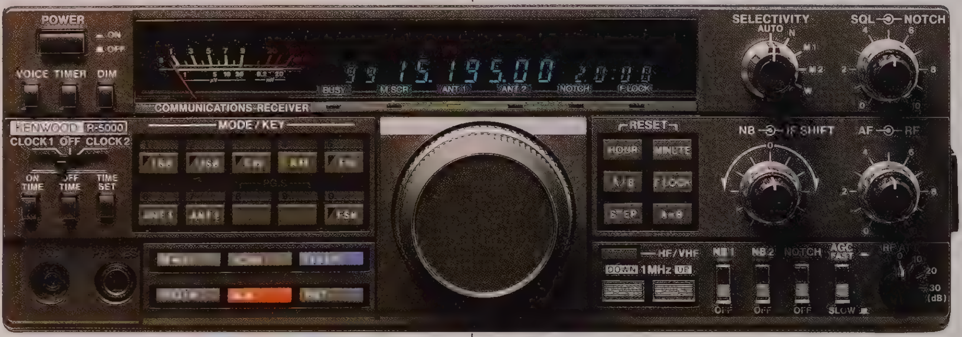
The world at your fingertips. Sophisticated technology developed for Kenwood's HF communications equipment directly contributes to the extremely high sensitivity and superior dynamic range of these communications receivers. From the world-class R-5000 to the wide-band RZ-1, an uncompromising commitment to quality is immediately evident in the wide range of user-friendly features and overall versatility they offer. Convenience combines with a professional level of performance, whatever the conditions. And engineering innovation — the fruit of intensive R&D — ensures that Kenwood's receivers set the standards that others follow.

COMMUNICATIONS
RECEIVER

R-5000

For Phenomenal Performance: Kenwood's Masterful R-5000

A born champion. Kenwood's competition-class R-5000 goes beyond meeting the demands of today's operators: it sets the pace for the next generation of communications receivers. Experience all-mode coverage from 100kHz to 30MHz — with the option of 108-174MHz VHF coverage. Experiment with the dual digital VFOs, tunable notch filter, dual-mode noise blanker, versatile memory and scan functions. And enjoy the superb dynamic range that comes from Kenwood's exclusive Dyna-Mix^{TM} high-sensitivity direct mixing system. Inside and out, the R-5000 is ideal for BCL, amateur radio and professional applications alike.

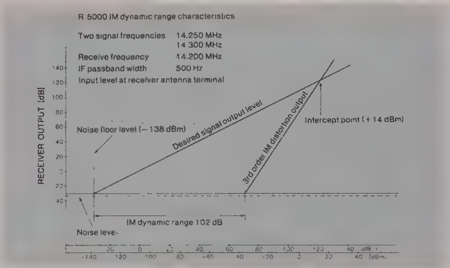


Covers 100kHz to 30MHz in 30 Bands, with optional 108-174MHz coverage (VC-20)

A digital PLL synthesizer system provides outstanding frequency stability across the spectrum. And the optional VC-20 converter unit adds VHF coverage.

First-class dynamic range receiver circuit

Innovative circuitry results in impressive two-signal characteristics plus a substantially improved noise floor level. Intermodulation dynamic range is 102dB.



All-mode operation

The R-5000 operates in SSB, CW, AM, FM and FSK modes. Front-panel mode keys facilitate selection, which is confirmed by International Morse Code.

10Hz-step dual digital VFOs

Operating independently, dual digital VFOs with a 10Hz step (100Hz in AM, FM modes) facilitate operation in different modes and frequencies without requiring separate VFOs. The A = B switch makes it possible to transfer tuning data (frequency, mode) from the active VFO to the inactive VFO.

STEP / MODE	OFF	ON
SSB/CW/FSK	10 Hz	100 Hz
AM	1 kHz	100 Hz
FM	5 kHz	2.5 kHz

Superior interference reduction

The R-5000 sports a host of features for interference reduction, including dual IF crystal filters for improved SSB operation, and an IF shift circuit that avoids interfering signals while maintaining optimal signal-to-noise ratio. There is also a tunable notch filter (peak filter in CW mode).

Full range of memory functions

● 100 memory channels

Divided into 10 groups of 10 channels each, these permit storage of frequency, band, mode and antenna terminal selection data for increased ease of operation.

● Memory scroll

This convenient function may be used to check memory channel data or to find a vacant channel without changing the current operating frequency or mode.

● Rechargeable memory back-up battery

Information stored in the memory channels and VFOs is protected by a long-life rechargeable lithium battery to ensure maximum reliability.

Versatile scan features

Any or all of the 100 memory channels can be scanned, while programmable memory channel lock-out allows selected channels to be skipped. During both memory scan and programmable band scan, scanning may be programmed to stop automatically on a busy channel for 6 seconds before resuming.

High-stability PLL frequency control

Automatic & manual selection of IF filters

High & low impedance antenna terminals

Dual-mode noise blanker ("pulse" & "woodpecker")

Dual 24-hour quartz clocks, with timer & remote control output

Numeric frequency selection

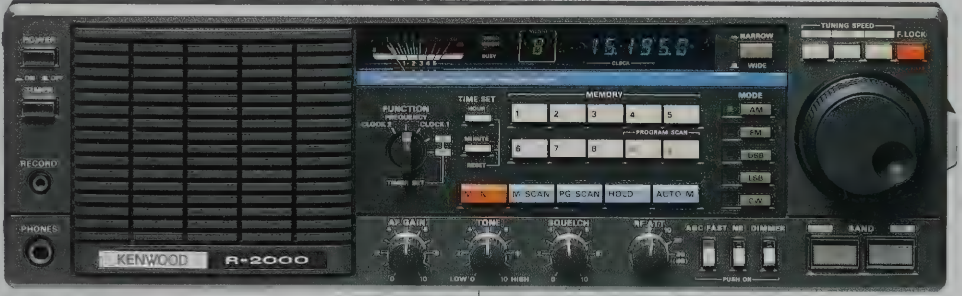
Optional IF-232C/IF-10 interface for computer control

Switchable AGC circuit (SLOW/FAST)

Built-in AC power supply with optional 13.8V DC operation

For Value and Versatility: Kenwood's All-Star R-2000

Able and accomplished. The R-2000 was designed with a singular purpose in mind: to provide reliable, high-quality reception in all modes — plus the flexibility and operating ease for which Kenwood's Amateur Radio equipment is renowned. Its ample frequency coverage (150kHz to 30MHz, with a 118-174MHz VHF option) and wide choice of modes (SSB, CW, AM & FM) make the R-2000 a serious contender. And the numerous built-in features — digital VFOs, 10 memory channels, memory scan and band scan, squelch circuit, noise blanker, and dual 24-hour quartz clocks — assure a high level of convenience, not to mention sheer enjoyment.



Covers 150kHz to 30MHz in 30 Bands, with optional 118-174MHz coverage (VC-10)

An innovative digitally controlled PLL circuit provides maximum ease of operation and superior performance. (The VC-10 VHF converter unit is a country-specific option.)

All-mode operation

The operator is free to select USB, LSB, CW, AM and FM modes from the front panel. Each mode key is paired with an LED to indicate whether it is active.

Digital VFOs

Thanks to the 50Hz-step digital VFOs, the R-2000 boasts excellent frequency accuracy and stability. The size of the tuning step can be selected — 50Hz, 500 Hz or 5 kHz — and an F.Lock switch protects against accidental bumps.

Powerful memory functions

- **10 memory channels**

All information on frequency, band, and mode can be stored — either manually or automatically — in the 10 available memory channels for instant recall.

- **Lithium battery back-up**

Memory and VFO information is protected by an internal lithium battery, an important convenience when moving the receiver from one location to another.

Memory scan and programmable band scan

Memory scan takes approximately 2 seconds per channel, and can be interrupted at any time with the HOLD key. If desired, only specific channels may be scanned. The programmed bandwith can be scanned in similar fashion, with memory channels 9 and 0 defining the upper and lower limits.

Noise blanker ("pulse")

The R-2000 features an effective communications-type noise blanker circuit, which eliminates pulse-type noise in SSB, CW, and AM modes.

Three built-in IF filters

The operator can choose from 6kHz (wide) and 2.7kHz (narrow) AM filters. A 2.7kHz bandwidth is automatically selected for SSB and CW modes, with 15kHz for FM.

Dual 24-hour quartz clocks, with timer

All-mode squelch circuit

Switchable AGC circuit (SLOW/FAST)

RF step attenuator

High & low impedance antenna terminals

100-240V AC operation

Optional 13.8V DC operation

RECEIVER

RZ-1

For Reliability on the Move: Kenwood's Multipurpose RZ-1

Compact and lightweight, the RZ-1 is packed with advanced microprocessor-controlled electronics, giving it the power to range over the frequency spectrum from 500kHz to 905MHz. For maximum operating ease, there are 100 memory channels, multiple scan functions plus 4 different stop modes, and dual antenna terminals with autoselect. Illuminated keys and a large LCD display are especially welcome. And wherever the RZ-1 roams, its performance is right on target.

Wide 500kHz to 905MHz coverage

In addition to Amateur Radio transmissions, the versatile RZ-1 can pick up FM stereo broadcasts and even multichannel TV sound for added entertainment.

100 multi-function memory channels with message capability

For the operator's convenience, there are 100 memory channels for storing frequencies together with messages and band marks. Each message can consist of up to 7 alphanumerics, while 6 different band marks can be selected and memorized as desired.

10-band program capability

By pressing a numeric key (1 through 0), the operator can recall the frequency range stored in the chosen memory channel. The encoder and scan function then operate within the specified range.

KENWOOD
WIDE BAND RECEIVER
VFO/M
VOL
POWER ON/OFF
SCAN
MSG
SQL
PHONES
SIGNAL
MODE
STEP
SCAN
STEP
MODE
M
C
S SEL
BEEP
ENTER
1
2
3
4
5
6
7
8
9
0

Auto-mode and auto-step operations

Modes of operation include AM, FM (narrow), FM (wide) and AUTO. When activated, AUTO mode automatically selects the appropriate mode and frequency step for the selected receiving band.

Easy-to-operate scan modes

- **VFO scan**

Scanning takes place automatically within the limits specified in the band program. If frequencies are input numerically, the full band is scanned.

- **Memory scan plus programmable memory channel lock-out**

The 100 memory channels are divided into 10 groups of 10 channels each for scanning purposes. Programmable memory channel lock-out allows selected channels to be skipped during the scanning process, without the loss of data stored in those channels.

Multiple scan stop modes

- **Seek-operated resume**

Scanning stops on a busy channel, and resumes only when the SCAN key is pressed again.

- **Carrier-operated resume**

Scanning will hold as long as a signal is present, and will resume scanning approximately 2 seconds after signal dropout.

- **Time-operated resume**

Scanning stops on a busy channel and will resume after approximately 6 seconds.

- **Audio-operated resume**

Scanning stops on a busy channel when an audio signal is present and will resume after approximately 6 seconds. In AM and FM (wide) modes, audio-operated resume is functionally identical to time-operated resume.

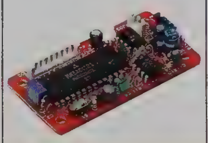
- **Numeric frequency selection**

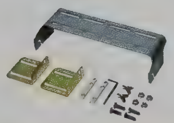
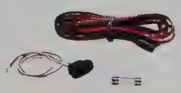
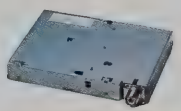
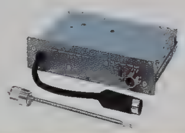
Without using the VFO tuning dial, a desired frequency can be input using the numeric and enter keys on the front panel.

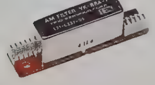
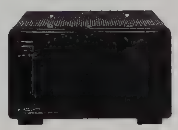
Large LCD display

Autoselect antenna terminals

Optional Accessories for Receivers

	SP-430	SP-41	SP-50B	IF-232C/IC-10	VS-1	HS-6
	External Speaker 	**Compact Mobile Speaker** 	**Mobile Speaker (8Ω)** 	**Interface Unit** 	**Voice Synthesizer Unit** 	**Small Headphones (12.5Ω)**
R-5000	●			●	●	●
R-2000						●
RZ-1		●	●			

	HS-5	MB-430	DCK-1	DCK-2	VC-20	VC-10
	Deluxe Headphones (8Ω) 	**Mobile Mount** 	**DC power cable kit** 	**DC power cable kit with cigar lighter plug** 	**VHF Converter Unit** 	**VHF Converter Unit** 
R-5000	●	●		●	●	
R-2000	●		●			●
RZ-1						

	YK-88C	YK-88CN	YK-88SN	YK-88A-1	YG-455C	PS-33
	500 Hz CW Filter 	**270 Hz CW Narrow Filter** 	**1.8 kHz SSB Narrow Filter** 	**6 kHz AM Filter** 	**500 Hz CW Filter** 	**Power Supply** 
R-5000	●	●	●	●		
R-2000					●	
RZ-1						●

SPECIFICATIONS HF Transceivers

	TS-950S	TS-850S	TS-690S	TS-450S
GENERAL				
Transmitter Frequency Range**	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10, 6 meter Amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands
Receiver Frequency Range	100 kHz~30 MHz	100 kHz~30 MHz	500 kHz~30 MHz, 50 MHz~54 MHz	500 kHz~30 MHz
Mode	J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1A (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1A (FSK), F3E (FM), A3E (AM)
Frequency Stability	$\pm 0.5 \times 10^{-6}$ (TS-950S Digital) $\pm 10 \times 10^{-6}$ (TS-950S) (−10°C ~ +50°C)	Better than $\pm 10 \times 10^{-6}$	Better than $\pm 10 \times 10^{-6}$	Better than $\pm 10 \times 10^{-6}$
Frequency Accuracy	$\pm 10 \times 10^{-6}$ (at normal temperatures)	—	—	—
Antenna Impedance	50 Ω	50 Ω	50 Ω	50 Ω
Power Requirements	120, 120/220, 120/240, 220/240 VAC, 50/60 Hz	13.8 VDC ±15%	13.8 VDC ±15%	13.8 VDC ±15%
Power Consumption	Max. transmit 700W Receive (no signal) 80W	Max. transmit 20.5A, Receive (no signal) 2A	Max. transmit 20.5A Receive (no signal) 2.1A	Max. transmit 20.5A Receive (no signal) 2.1A
Dimensions mm (inch) (Projections not included)	402 (15.83)W × 141(5.55)H × 400(15.75)D mm (inch)	330 (12.99)W × 120(4.72)H × 334(13.15)D mm (inch)	270(10.63)W × 96(3.78)H × 328(12.91)D mm (inch)	270(10.63)W × 96(3.78)H × 305(12.01)D mm (inch)
Weight	23 kg (50.71 lbs.) approx. (TS-950S Digital) 22 kg (48.50 lbs.) approx. (TS-950S)	11 kg (24.25 lbs.) approx.	6.9 kg (15.2 lbs.) approx.	6.3 kg (13.89 lbs.) approx. 7.5 kg (16.5 lbs.) (TS-450SAT)
TRANSMITTER				
Output Power (Without Antenna Tuner)	SSB/CW/FSK/FM=150W PEP AM=40W *10m: 110W PEP (AM=30W)	SSB/CW/FM/FSK=100W, AM=40W	1.9 MHz~28 MHz SSB/CW/FM/FSK=100W, AM=40W 50 MHz SSB/CW/FM/FSK=50W, AM=20W	1.9 MHz~28 MHz SSB/CW/FM/FSK=100W, AM=40W
Modulation	SSB=Balanced Modulation FM=Reactance Modulation AM=Low Level Modulation	SSB=Balanced Modulation FM=Reactance Modulation AM=Low Level Modulation	SSB=Balanced Modulation FM=Reactance Modulation AM=Low Level Modulation	SSB=Balanced Modulation FM=Reactance Modulation AM=Low Level Modulation
FM Maximum Frequency Deviation	±5 kHz	±5 kHz	Less than ±5 kHz	Less than ±5 kHz
FSK Shift Width	170 Hz	—	—	—
Carrier Suppression	Less than −50 dB (TS-950S Digital) −40 dB (TS-950S)	Less than −40 dB	More than 40 dB (Modulation frequency: 1.5 kHz)	More than 40 dB (Modulation frequency: 1.5 kHz)
Spurious Response	Less than −40 dB	Less than −60 dB (CW)	1.9 MHz~28 MHz: Less than −50 dB (CW) 50 MHz: Less than −60 dB (CW)	Less than −50 dB (CW)
Unwanted Sideband Suppression	Better than 60 dB (TS-950S Digital) 50 dB (TS-950S) (Modulation frequency: 1.5 kHz)	Better than 40 dB (Modulation frequency: 1.5 kHz)	More than 40 dB (Modulation frequency: 1.5 kHz)	More than 40dB (Modulation frequency: 1.5 kHz)
Third Harmonic Intermodulation Distortion	Better than −37dB (at 14.2 MHz) (based on single tone output)	—	—	—
Microphone Impedance	500 Ω~50 kΩ	600 Ω	600 Ω	600 Ω
Frequency Response (SSB)	200~3100Hz (TS-950S Digital) 400~2600Hz (TS-950S)	400~2600Hz (−6 dB) (SSB)	400~2600Hz (−6dB) (SSB)	400~2600kHz (−6dB) (SSB)
RECEIVER				
Circuitry	Quadruple conversion system	Triple conversion system	Triple conversion system	Triple conversion system
Intermediate Frequency	1st IF 73.05 MHz 2nd IF 8.83 MHz, 3rd IF 455kHz 4th IF 100 kHz (except FM)	1st IF 73.05 MHz 2nd IF 8.83 MHz, 3rd IF 455kHz at 10 dB (S+N/N) (0 dBμ=1 μV)	1st IF 73.05 MHz 2nd IF 8.83 MHz 3rd IF 455kHz	1st IF 73.05 MHz 2nd IF 8.83 MHz 3rd IF 455kHz
Sensitivity [at 10 dB (S+N/N)] (0 dBμ=1μV)	SSB/CW/FSK=Less than 2.5μV (100~150 kHz) 1μV (150~500 kHz) 4μV (500 kHz~1.62 MHz) 0.2μV (1.62~30 MHz) AM: Less than 25μV (100 ~150 kHz) 10μV (150 ~500 kHz) 32μV (500 kHz~1.62 MHz) 2μV (1.62~30 MHz) FM (SINAD 12 dB): less than 0.5μV (28~30 MHz)	SSB/CW/FSK=Less than 0.2μV (100~500 kHz) 4μV (500 kHz~1.705 MHz) 0.2μV (1.705~24.5 MHz) 0.18μV (24.5~30 MHz) AM: Less than 2μV (100 ~500 kHz) 32μV (500 kHz~1.705 MHz) 2μV (1.705~24.5 MHz) 1.3μV (24.5~30 MHz) FM (SINAD 12 dB): Less than 0.25μV (28~30 MHz)	SSB/CW/FSK=Less than 4μV (500 kHz~1.705 MHz) 0.25μV (1.705~21.5 MHz) 0.18μV (21.5~30 MHz) 0.16μV (50~54 MHz) AM: Less than 32μV (500 kHz~1.705 MHz) 2.5μV (1.705~21.5 MHz) 2.0μV (21.5~30 MHz) FM (SINAD 12 dB):Less than 0.25μV (28~30 MHz) 0.25μV (50~54 MHz)	SSB/CW/FSK=Less than 4μV (500 kHz~1.705 MHz) 0.25μV (1.705~21.5 MHz) 0.18μV (21.5~30 MHz) AM: Less than 32μV (500 kHz~1.705 MHz) 2.5μV (1.705~21.5 MHz) 2.0μV (21.5~30 MHz) FM (SINAD 12 dB): Less than 0.25μV (28~30 MHz)
Squelch Sensitivity	SSB/CW/FSK/AM=Less than 6.3μV (100~150 kHz) 2.5μV (150~500 kHz) 10μV (500 kHz~1.62 MHz) 0.5μV (1.62~30 MHz) FM: Less than 0.32μV (28~30 MHz)	SSB/CW/FM/AFSK=Less than 20μV (500 kHz~1.705 MHz) 2μV (100~500 kHz, 1.705~30 MHz) FM: Less than 0.25μV (28~30 MHz)	SSB/CW/FM/AFSK=Less than 20μV (500 kHz~1.705 MHz) 2μV (1.705~30 MHz) (50~54 MHz) FM: Less than 0.25μV (28~30 MHz, 50~54 MHz)	SSB/CW/FM/AFSK=Less than 20μV (500 kHz~1.705 MHz) 2μV (1.705~30 MHz) FM: Less than 0.25μV (28~30 MHz)
Image Ratio	More than 80 dB (1.8~30 MHz)	More than 80 dB (1.8~30 MHz)	More than 70 dB (1.8~30 MHz, 50~54 MHz)	More than 70 dB (1.8~30 MHz)
IF Rejection	More than 70 dB (1.8~30 MHz)	More than 80 dB (1.8~30 MHz)	More than 70 dB (1.8~30 MHz, 50~54 MHz)	More than 70 dB (1.8~30 MHz)
Selectivity	SSB/CW/FSK=2.4 kHz (−6 dB), 3.8 kHz (−60 dB) AM: 6 kHz (−6 dB), 15 kHz (−60 dB) FM: 12 kHz (−6 dB), 24 kHz (−60 dB)	SSB/CW/FSK=2.4 kHz (−6 dB), 3.8 kHz (−60 dB) AM: 6 kHz (−6 dB), 15 kHz (−60 dB) FM: 12 kHz (−6 dB), 24 kHz (−60 dB)	SSB/CW/FSK= More than 2.2 kHz (−6 dB), Less than 4.4 kHz (−60 dB) AM: More than 5 kHz (−6 dB), Less than 18 kHz (−50 dB) FM: More than 12 kHz (−6 dB), Less than 25 kHz (−50 dB)	SSB/CW/FSK=More than 2.2 kHz (−6 dB), Less than 4.4 kHz (−60 dB) AM: More than 5 kHz (−6 dB), Less than 18 kHz (−50 dB) FM: More than 12 kHz (−6 dB), Less than 25 kHz (−50 dB)
Variable Frequency Range	SSB slope tuning (with SSB filter) High-cut= more than 1500 Hz Low-cut=more than 700 Hz CW VBT (without optional filter): 600 Hz~2.4 kHz (continuous)	—	—	—
RIT/XIT Variable Range	±9.99 kHz	±1.2 kHz (10 Hz step)/ ±2.4 kHz (20Hz step)	More than 1.1 kHz (10 Hz Step) More than 2.2 kHz (20 Hz Step)	More than 1.1 kHz (10 Hz Step) More than 2.2 kHz (20 Hz Step)
Notch Filter Attenuation	More than 45 dB	More than 40 dB (Audio frequency 1.5 kHz)	More than 20dB	More than 20 dB
Audio Output Power	1.5W (8 Ω at 10% distortion)	1.5W (8 Ω at 10% distortion)	1.5W (8 Ω at 10% distortion)	1.5W (8 Ω at 10% distortion)
Audio Output Impedance	8 Ω	8 Ω	8 Ω	8 Ω

TS-140S
160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands
500 kHz~30MHz
J3E (SSB), A1A (CW), F3E (FM), A3E (AM)
Better than $\pm 10 \times 10^{-6}$ (−10°C~+50°C)
Better than $\pm 10 \times 10^{-6}$
50 Ω
Standard 13.8 VDC (12.0~16.0 VDC)
Max. transmit 20A Receive (no signal) 1.5A
270(10.63)W × 96(3.78)H × 270(10.63)D mm (inch)
6.1 kg (13.45 lbs.) approx.
SSB = 110W PEP, CW = 100W, FM = 50W, AM = 40W
SSB = Balanced Modulation FM = Reactance Modulation AM = Low Level Modulation
±5 kHz
—
More than 40 dB
Less than −40 dB
More than 50dB
Better than −26 dB
500 Ω~50 kΩ
400~2600Hz (−6dB) (SSB)
Double conversion system
1st IF 45.055 MHz 2nd IF 455 kHz
SSB/CW = Less than 3.98μV (0.5~1.6 MHz) 0.25μV (1.6~30 MHz) AM: Less than 39.8μV (0.5~1.6 MHz) 2.5μV (1.6~30 MHz) FM (SINAD 12 dB): Less than 0.35μV (21.5~30 MHz)
FM = Less than 0.32μV
More than 50 dB
More than 50 dB
SSB/CW = 2.2 kHz (−6 dB), 4.4 kHz (−60 dB) AM: 6 kHz (−6 dB), 18 kHz (−50 dB) FM: 12 kHz (−6 dB), 25 kHz (−50 dB)
—
−1.28~+1.27 kHz (10 Hz Step) −2.56~+2.54 kHz (20 Hz Step)
—
1.5W (8 Ω at 10% distortion)
8~16 Ω

Communications Receivers

	R-2000	R-5000
Frequency Range**	150 kHz~30 MHz	100 kHz~30MHz
Mode	J3E (SSB), A1A (CW), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1B (FSK), F3E (FM), A3E (AM)
Sensitivity **SSB/CW/AM: S+N/N = 10 dB** **FM: S+N/N = 20 dB**	SSB/CW = Less than 2μV (150 kHz~2 MHz) Less than 0.4μV (2~30 MHz) Less than 1μV (118~174MHz) AM: Less than 20μV (150 kHz~2 MHz) Less than 4μV (2~30 MHz) Less than 10μV (118~174 MHz) FM: Less than 1μV (2~30 MHz) Less than 2μV (118~174 MHz)	SSB/CW/FSK = Less than 2.5μV (100~150 kHz), 1μV (150~500 kHz) 4μV (0.5~1.8 MHz), 0.25μV (1.8~30 MHz) *0.5μV (108~123 MHz), *0.25μV (123~174 MHz) AM: Less than 25μV (100~150 kHz), 10μV (150~500 kHz) 32μV (0.5~1.8 MHz), 2μV (1.8~30 MHz) *4μV (108~123 MHz), *2μV (123~174 MHz) FM: Less than 0.5μV (1.8~30 MHz), *1μV (108~123 MHz), *0.5μV (123~174 MHz)
Selectivity	AM (W): 6 kHz (−6 dB), 18 kHz (−50 dB) AM (N): 2.7 kHz (−6 dB), 5 kHz (−50 dB) SSB/CW: 2.7 kHz (−6 dB), 5 kHz (−50 dB) FM: 15 kHz (−6 dB), 30 kHz (−50 dB)	SSB/CW/FSK: 2.4 kHz (−6 dB), 4.4 kHz (−60 dB) AM: 6 kHz (−6 dB), 20 kHz (−50 dB) FM: 12 kHz (−6 dB), 25 kHz (−50 dB)
Image Ratio	Better than 70 dB	Better than 60 dB (100 kHz~1.8 MHz) 80 dB (1.8~30MHz)
IF Rejection	Better than 70 dB	Better than 60 dB (100 kHz~1.8 MHz) 70 dB (1.8~30 MHz)
Frequency Stability	Within ±300Hz from 1 to 60 minutes after turn-on Within ±50Hz during any 30 minutes period thereafter	
Frequency Accuracy	$\pm 10 \times 10^{-6}$ or better (at normal temperature)	$\pm 10 \times 10^{-6}$ or better (at normal temperature)
Squelch Sensitivity	AM/SSB/CW = Less than 3.12μV [5μV] FM: Less than 0.5μV [1μV]	SSB/CW/AM/FSK = Less than 20μV (100~150 kHz, 0.5~1.8MHz) 10μV (150~500 kHz, *108~123 MHz) 2μV (1.8~30, *123~174 MHz) FM: Less than 0.32μV (1.8~30, *123~174MHz), 1μV (*108~123 MHz)
Audio Load Impedance	4~16 Ω	8 Ω
Audio Output Power	1.5W (8 Ω load, 10% distortion)	1.5W (8 Ω load, 10% distortion)
Antenna Impedance	50 Ω/500 Ω	50 Ω/500 Ω
Power Consumption	14W AC [16W], (no signal) 13.8V DC, 0.6A [0.8A] (no signal)	40W AC 13.8V DC, 2A (with optional DCK-2)
Power Requirement	100/120/220/240V AC, 50/60 Hz 13.8V DC (with optional DCK-1)	120V AC 50/60 Hz 13.8V DC, 2A (with optional DCK-2)
Dimensions mm (inch) (Projection not included)	375(14.8)W × 115(4.5)H × 210(8.3)D	270(10.6)W × 96(3.78)H × 270(10.6)D
Weight	5.5kg (12.1 lbs.) approx. [ ]: with VC-10 (VHF converter unit)	5.6kg (12.3 lbs.) approx. *with VC-20 (VHF converter unit)

Communications Receivers

	RZ-1
Frequency Range**	500 kHz~905 MHz
Mode	A3E (AM), F3E (FM), C3F (TV: TV Visual, NTSC 60~905MHz)
Circuitry	AM, FM(N) = Triple conversion system FM(W) = Double conversion system
Intermediate Frequency	1st IF = 45.75 MHz, 2nd IF = 10.70 MHz 3rd IF = 455.00 kHz [AM, FM(N)]
Sensitivity	AM (S+N/N = 10 dB) = less than 5μV (MW band 10μV) FM(N) = 12 dB SINAD less than 6 μV (500 kHz~60 MHz), 3μV (60~905 MHz) FM(W) = 12 dB SINAD less than 1μV (83 MHz)
Frequency Stability	Less than ±1.0 kHz (500 kHz~100MHz) Less than ±10 PPM (100MHz~)

Selectivity	Mode	−6 dB	−30 dB	−50 dB
	AM	7 kHz	—	18 kHz
	FM (N)	10 kHz	—	30 kHz
	FM (W)	250 KHz	600 kHz	—

IF Rejection	More than 40 dB (60 MHz~905 MHz)
Separation (Stereo)	More than 30 dB (modulation frequency 1 kHz)
Receiving Frequency Step.	Manual: 5 kHz, 12.5 kHz, 20 kHz, 25kHz Auto: 10 kHz, 100 kHz
Video Out (55.5~900.5 MHz)	1Vp-p 75Ω (NTSC) Display frequency 60~905 MHz
Operating Temperature	−10°C~+60°C
Audio Output Power	2W (at 8 Ω load 10% distortion)
Current Drain	Less than 1A (audio power output 1W)
Antenna Impedance	50~300 Ω
Power Requirement	13.8V DC (11V~16V)
Dimensions	180(W) × 50(H) × 158(D) mm (7.09 × 1.97 × 6.22 inch), projections not included
Weight	1.5 kg (3.31 lbs.)

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to advances in technology.
KENWOOD reserves the right to add or delete models or products without notice to maintain its competitive position in the market.
Products included in this catalog are products that were a part of KENWOOD's product line as of the date of this printing.

** Specifications are guaranteed for Amateur band only.

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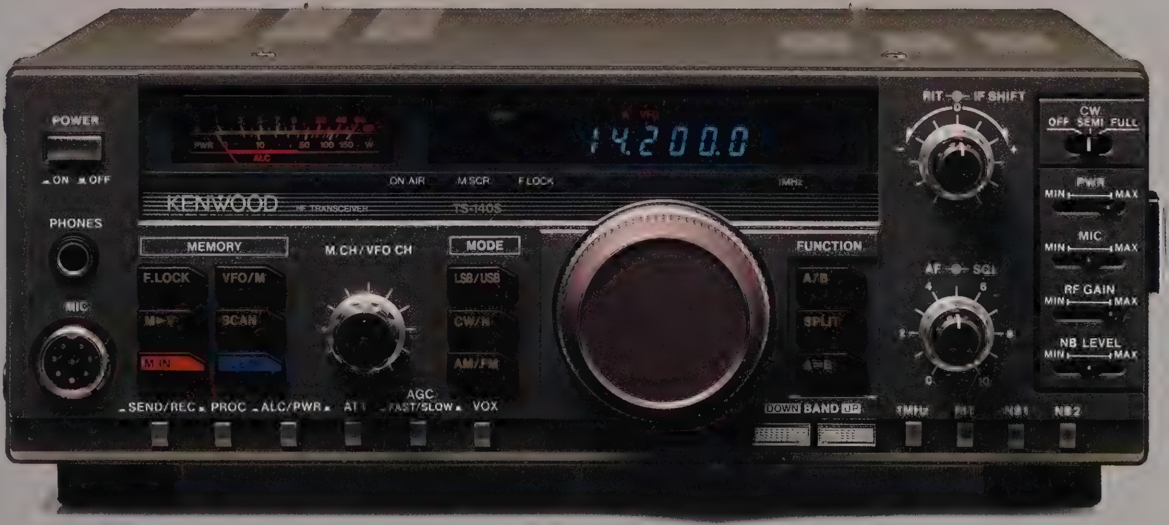
KENWOOD

TS-140S

HF TRANSCEIVER

New Product Information



The TS-140S is a high-performance HF transceiver designed for SSB, CW, AM and FM modes of operation on all Amateur bands. It incorporates an outstanding 500 kHz to 30 MHz general coverage receiver with superior dynamic range, combining the ultimate in compact size with advanced technology.

[FEATURES]

160-m to 10-m Amateur Band Operation with 500 kHz to 30 MHz General Coverage Receiver

The TS-140S covers all Amateur bands from 160 to 10 meters, including the new WARC 30, 17 and 12 meter bands. Its superior dynamic range general coverage receiver provides reception on any frequency from 500 kHz to 30 MHz.

All-Mode Operation

Modes of operation include USB, LSB, CW, AM and FM. Mode selection is quickly accomplished through use of front panel mode keys. International Morse Code confirms the selected mode.

Auto-Mode Operation for SSB Mode

Mode selection is automatically selected in SSB (LSB/USB) mode, depending on frequency.

Compact and Lightweight

Measures only 270 (10.2) W × 96 (3.78) H × 270 (10.2) mm (inch), and weighs only 6.1 kg (13.45 lbs).

CW Full Break-In, Semi Break-In and VOX Circuit

Full break-in capability allows the DX or contest operator to respond more quickly to calling station. A front panel switch permits switching to semi break-in operation.

Superior Receiver Dynamic Range

The receive front end has been specifically designed to provide superior dynamic range. The intermodulation dynamic range is 102 dB, with an overall intercept point of +12 dBm, noise floor level of −138 dBm. (when the optional 500 Hz CW filter YK-455C-1 installed)

10 Hz Step Dual Digital VFOs

Built-in 10 Hz (100 Hz in AM, FM mode) step dual digital VFOs operate independently of each other, allowing for ease of split frequency or cross-band operation in different modes without need for a separate VFO.

31 Memory Channels

31 memory channels can store frequency, mode and narrow-wide information in CW mode.

- **Split memory channels**

10 memory channels (from CH-10 to CH-19) store transmit and receive frequencies independently, allowing repeater or split frequency operation.

- **Programmable band marker**

11 memory channels (from CH-20 to CH-30) establish the upper and lower limits for lower limits for VFO tuning.

- **Memory Scroll**

Depressing the "M, IN" switch, a convenient function "memory scroll" may be used to check memory channel data or to find the vacant channel on the display without changing operating frequency and mode.

- Depressing the "VFO/M" switch on the front panel permits selection of the memory channel, using the main tuning control. The "M▶ V" switch is used to transfer memory data to the active VFO.

Memory Scan and Band Scan

- **Memory scan plus programmable memory channel lock-out**
- **Programmable band scan**
- **Adjustable scanning speed**

Built-in Dual-Mode Noise Blanker ("Pulse" or "Woodpecker")

Depressing the NB-1 and NB-2 switches are most effective in suppressing pulse-type (ignition) and "woodpecker" noise.
The NB level control adjusts the threshold level of the noise amplifier, allowing the operator to control the effectiveness of the noise blanker under the specific noise and signal level conditions.

IF Shift Circuit

Allows the IF passband to be moved away from interfering signals while keeping the desired signal optimally placed for best gain and signal-to-noise ratio.

UP/DOWN and 1 MHz switches

Front panel UP/DOWN band switches allow easy selection of the desired Amateur band. 1 MHz band steps across the entire 500 kHz — 30 MHz range, using UP/DOWN switches.

Built-In RIT

Adjustable VFO Tuning Torque

RF Attenuator (−20 dB)

Switchable AGC Circuit (FAST/SLOW)

Built-In Speech Processor

Optional Personal Computer Control (IF-232C/IF-10C)

Software is not available from KENWOOD

RF Output Power Control (10 watts to full power output)

"F.LOCK" Switch

Optional Automatic Antenna Tuner (AT-250)

Non-Volatile Operating System

Fluorescent Tube Digital Display

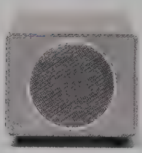
Squelch Circuit (for FM mode)

OPTIONAL ACCESSORIES

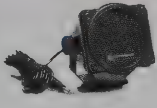
AT-250: Automatic Antenna Tuner
(160~10-m bands)

AT-130: Antenna Tuner
(80~10-m bands)

SP-430:
External Speaker

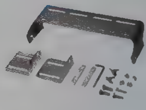


SP-40
Compact Mobile
Speaker (4 Ω)

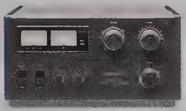


SP-50B
Mobile Speaker (8 Ω)

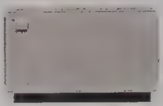
MB-430:
Mobile Mount



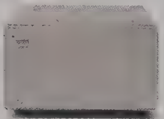
TL-922/922A
(TL-922A for U.S.A.)
HF Linear Amplifier



PS-50: Heavy Duty
Power Supply (20A)

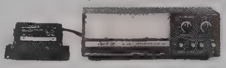


PS-430: DC Power
Supply (10A)



PG-2S:
DC Cable

SW-200A, 2000: SWR/POWER Meter
for base station use
200A: 1.8~150 MHz (0~20/200 W)
2000: 1.8~54 MHz (0~200/2000 W)

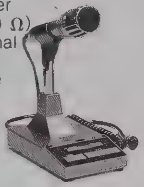


HS-5
Deluxe
Headphones
(8 Ω)

SW-100A: SWR/POWER Meter
(1.8~150 MHz) for mobile use. (0~150 W)

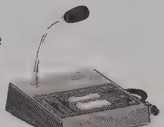
HS-6
Small-sized
Headphones
(12.5 Ω)

MC-60A (8 pin)
Deluxe Desk-Top
Microphone
With built-in
Pre-Amplifier
(50 kΩ/500 Ω)
Unidirectional
dynamic
microphone

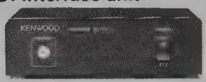


MC-80 (8 pin)
Desk-Top Microphone
With built-in Pre-Amplifier
(700 Ω)
Omnidirectional
electret
condenser
microphone

MC-85 (8 pin)
Deluxe Desk-Top Microphone
With built-in Audio Level
Compensation
(700 Ω)
Unidirectional
electret
condenser
microphone



IF-232C/IF-10C: Interface unit
* Software is not
available from
KENWOOD



MA-5: 5 Band Helical Type HF Mobile
Antenna covers 10, 15, 20, 40, 75 m

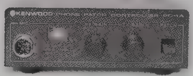
HF MOBILE ANTENNA
MA-5

(VP-1: Bumper Mount for MA-5)

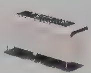
MC-55 (8 pin)
Mobile Microphone
with time-out-timer (700 Ω)
Electret condenser microphone

MC-43S (8 pin)
UP/DOWN Microphone
(500 Ω)

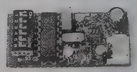
PC-1A:
Phone Patch
(Available only where
phone patch operation is legal)



YG-455C-1
YK-455C-1
500 Hz CW Filter



TU-8:
CTCSS Encoder unit



Some accessories may not be available in your area.

TS-140S SPECIFICATIONS

[GENERAL]

Transmitter Frequency Range	160, 80, 40, 30, 20, 17, 15, 12, 10 meter Amateur bands
Receiver Frequency Range	500 kHz~30 MHz
Mode	A3J [J3E] (USB, LSB), A1 [A1A] (CW), F3 [F3E] (FM), A3 [A3E] (AM).
Operating Temperature	−10°C ~ +50°C
Frequency Stability	Better than ±10×10⁻⁶ (−10°C~+50°C)
Frequency Accuracy	Better than ±10×10⁻⁶
Antenna Impedance	50 Ω
External Speaker Impedance	8~16 Ω
Power Requirement	Standard 13.8 VDC (12.0 ~ 16.0 VDC)
Power Consumption	Max. transmit 20A, Receive (no signal) 1.5A
Dimensions (Projections not included)	270 (10.63) W×96 (3.78) H×270 (10.63) D mm (inch)
Weight	6.1 kg (13.45 lbs) approx.

[Transmitter]

RF Power Output	SSB=110 WPEP CW=100 W FM=50 W AM=40 W
Modulation	SSB=Balanced Modulation FM=Reactance Modulation AM=Low Level Modulation
FM Maximum Frequency Deviation	±5 kHz
Carrier Suppression	More than 40 dB
Spurious Radiation	Less than −40 dB
Unwanted Sideband Suppression	More than 50 dB
Third Harmonic Intermodulation Distortion	Better than −26 dB
Microphone Impedance	500 Ω~50 kΩ
Frequency Response	400~2600 Hz (−6 dB) (SSB)

[Receiver]

Circuitry	Double conversion system
Intermediate Frequency	1st IF = 45.055 MHz, 2nd IF = 455 kHz
Sensitivity	at 10 dB (S+N/N)

Frequency / Mode	500 kHz~ 1.6 MHz	1.6~21.5 MHz	21.5~30 MHz
SSB, CW	Less than 3.98 μV	Less than 0.25 μV	
AM	Less than 39.8 μV	Less than 2.5 μV	
FM (SINAD 12 dB)	–	–	Less than 0.35 μV

Squelch Sensitivity	FM: Less than 0.32 μV (1.6~30 MHz)
Image Ratio	More than 50 dB
IF Rejection	More than 50 dB
Selectivity	SSB/CW=2.2 kHz (−6 dB) 4.4 kHz (−60 dB) AM=6 kHz (−6 dB), 18 kHz (−50 dB) FM=12 kHz (−6 dB), 25 kHz (−50 dB)
RIT Variable Range	−1.28~+1.27 kHz (10 Hz step) −2.56~+2.54 kHz (20 Hz step)
IF Shift Variable Range	±1.28 kHz
Audio Output Impedance	8~16 Ω
Audio Output Power	1.5 W (8 Ω at 10% distortion)

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to improvement in technology.

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211 N. Main St.
Butler, MO. 64730
(816) 679-3127

Missouri Radio Center
102 N.W. Business Park Lane
Kansas City, MO. 64150
(816) 741-8118

NEVADA

Amateur Electronic Supply
1072 N. Rancho Dr.
Las Vegas, NV. 89106
(702) 647-3114

NEW HAMPSHIRE

EGE, New England
8 Stiles Rd.
Salem, NH 03079
(603) 898-3750

NEW MEXICO

Electronic Module
601 No. Turner
Hobbs, N. M. 88240
(505) 397-3022

NEW YORK

Barry Electronics
512 Broadway
New York, N.Y. 10012
(212) 925-7000

Harrison Radio Corp.
20 Smith St.
Farmingdale,LI, NY 11735
(516) 293-7995

OHIO

Amateur Electronic Supply
28940 Euclid Ave.
Wickliffe, OH. 44092
(216) 585-7388

R & L Electronics
575 Main Street
Hamilton, OH 45013
(513) 868-6399

Universal Amateur Radio
1280 Aida Dr.
Reynoldsburg, OH. 43068
(614) 866-4267

OKLAHOMA

Radio Inc.
1000 S. Main
Tulsa, OK. 74119
(918) 587-9123

OREGON

Portland Radio
1234 S. W. Stark St.
Portland, OR. 97205
(503) 228-8647

PENNSYLVANIA

Hamtronics/Trevose
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Trevose, PA. 19047
(215) 357-1400

J.R.S. Dist.
646 W. Market St.
York, PA. 19047
(717) 854-8624

SOUTH DAKOTA

Burghardt Amateur Center
P. O.Box 73
182 N. Maple Street
Watertown, S. D. 57201
(605) 886-7314

TENNESSEE

Memphis Amateur Electronics
1465 Wells Station Rd.
Memphis, TN 38108
(901) 683-9125

TEXAS

Austin Amateur Radio Supply
Cameron Village Shopping Center
5325 North IH35
Austin, TX 78723
(512) 454-2994

Douglas Electronics
1118 S. Staples
Corpus Christi, TX. 78404
(512) 883-5103

Electronics Center
2809 Ross Ave.
Dallas, TX. 75201
(214) 526-2023

Hardin Electronics
5635 E. Rosedale
Ft. Worth, TX. 76112
(817) 429-9761

Kennedy Associates Amateur
Ham Amateur Shop
5707A Mobud
San Antonio, TX. 78238
(512) 680-6110

Madison Electronics
3621 Fannin St.
Houston, TX. 77004
(713) 520-7300

Television Den
213 N. First St.
Harlingen, TX 78550
(512) 423-7228

Texas R.F. Distributors
1108 Summit Ave., Ste. 4
Plano, TX. 75074
(214) 422-7306

VIRGINIA

EGE, Inc.
13646 Jefferson Davis Hwy
Woodbridge, VA. 22191
(703) 643-1063

Electronic Equipment Bank
516 Mill St. N.W.
Vienna, VA 22180
(703) 938-3350

WASHINGTON

A-B-C Communications
17550 15th Ave. N.E.
Seattle, WA. 98155
(206) 364-8300

Amateur Radio Supply
6213 13th Ave. So.
Seattle, WA. 98108
(206) 767-3222

C-Comm
6115 15th Ave. N.W.
Seattle, WA. 98107
(206) 784-7337

WEST VIRGINIA

H. L. Heaster, Inc
P.O. Box 188
203 Buckhannon Pike
Clarksburg, W.V. 26301
(304) 624-5485

WISCONSIN

Amateur Electronic Supply
4828 W. Fond Du Lac Ave.
Milwaukee, WI. 53216
(414) 442-4200

KENWOOD

KENWOOD U.S.A. CORPORATION
2201 E. Dominguez St.
Long Beach, CA 90810
Telephone: (213) 639-9000
Mailing Address:
P.O. Box 22745
Long Beach, CA 90801-5745

AUTHORIZED AMATEUR RADIO DEALERS

ALABAMA

Long's Electronics
2700 Crestwood Blvd.
Birmingham, AL. 35210
(205) 956-6767

ALASKA

Reliable Electronics
3306 Cope St.
Anchorage, AK. 99503
(907) 561-5515

ARIZONA

Ham Radio Outlet
1702 W. Camelback Rd.
Phoenix, AZ. 85015
(602) 242-3515

CALIFORNIA

Ham Radio Outlet
2620 W. La Palma
Anaheim, CA. 92801
(714) 761-3033

Ham Radio Outlet
999 Howard Ave.
Burlingame, CA. 94010
(415) 342-5757

Ham Radio Outlet
2210 Livingston Street
Oakland, CA 94606
(415) 534-5757

Ham Radio Outlet
5375 Kearny Villa Rd.
San Diego, CA. 92123
(619) 560-4900

Ham Radio Outlet
6265 Sepulveda Blvd. #14
Van Nuys, CA. 91401
(818) 988-2212

Henry Radio, Inc.
2050 Bundy Dr.
Los Angeles, CA. 90025
(213) 820-1234

Jun's Electronics
3919 Sepulveda Blvd.
Culver City, CA. 90230
(213) 390-8003

COLORADO

CW Electronic Sales Co.
800 Lincoln St.
Denver, CO. 80203
(303) 832-1111

Colorado Comm Center
525 East 70th Ave. Suite 1W
Denver, CO 80229
(303) 433-3355

DELAWARE

Delaware Amateur Supply
71 Meadow Rd.
New Castle, DE. 19720
(302) 328-7728

FLORIDA

Amateur Electronic Supply
1898 Drew St.
Clearwater, FL. 33575
(813) 461-4267

International Radio Sys.
5001 NW 72nd Avenue
Miami, FL. 33166
(305) 594-4313

Amateur Electronic Supply
621 Commonwealth
Orlando, FL. 32803
(305) 894-3238

N & G Distributing
1950 NW 94th Avenue
Miami, FL. 33172
(305) 592-9685

Amateur Radio Center
2805 N. E. Second Ave.
Miami, FL. 33137
(305) 573-8383

Quad Electronics
1420 No. Pace Blvd.
Pensacola, FL. 32505
(904) 438-3319

Hialeah Communications
630 E. 9th Street
Hialeah, FL. 33010
(305) 885-9929

GEORGIA

Doc's Communications
702 Chickamauga Avenue
Rossville, GA. 30741
(404) 866-2302

Ham Radio Outlet
6071 Buford Highway
Atlanta, GA 30340
(404) 263-0700

HAWAII

Honolulu Electronics
819 Keeaumoku St.
Honolulu, HI. 96814
(808) 949-5564

IDAHO

Ross Distributing Co.
78 S. State St.
Preston, ID. 83263
(208) 852-0830

ILLINOIS

Erickson Communications
5456 N. Milwaukee Ave.
Chicago, IL. 60630
(312) 631-5181

INDIANA

American Electronics
P. O. Box 301
173 E. Broadway
Greenwood, IN. 46142
(317) 888-7265

KANSAS

Associated Radio Comm.
P. O. Box 4327
8012 Conser
Overland Pk., KS. 66204
(913) 381-5901

MARYLAND

Electronic International Svce.
11204 Spur Wheel Lane
Rockville, MD 20854
(301) 983-3033

Maryland Radio Center
8576-A Laureldale Dr.
Laurel, MD 20707
(301) 725-1212

MASSACHUSETTS

Tel-Com Electronic Comm.
675 Great Rd.
Littleton, MA. 01460
(617) 486-3400

MICHIGAN

Michigan Radio
38270 Mast
Mt. Clemens, MI. 48045
(313) 469-4656

MINNESOTA

TNT Amateur Radio
4124 W. Broadway
Robinsdale, MN. 55422
(612) 535-5050

MISSISSIPPI

Hooper Electronics
495 Rodenberg Ave.
Biloxi, MS. 39531
(601) 693-2716

KENWOOD

KENWOOD U.S.A. CORPORATIO
P.O. Box 22745
2201 East Dominguez Street
Long Beach, CA 90810-5745
Telephone: (213) 639-9000

TS-140S/TS-680S Supplemental Information

The TS-680S is similar to the TS-140S, but with the following exceptions:

- 6 meter coverage with ten watts output.

- Extended 6 meter receiver range: 45 - 60 MHz. (Specifications guaranteed for 50 - 54 MHz.)

- Preamplifier for 6 and 10 meter bands.

- VOX operation is optional on the TS-680S. (The VOX-4 unit is available for VOX operation.)

Suggested retail prices:

TS-140S:	$899.95
TS-680S	$999.95
YK-455C-1	$89.95
IF-10C	$44.95

11/87

YAESU

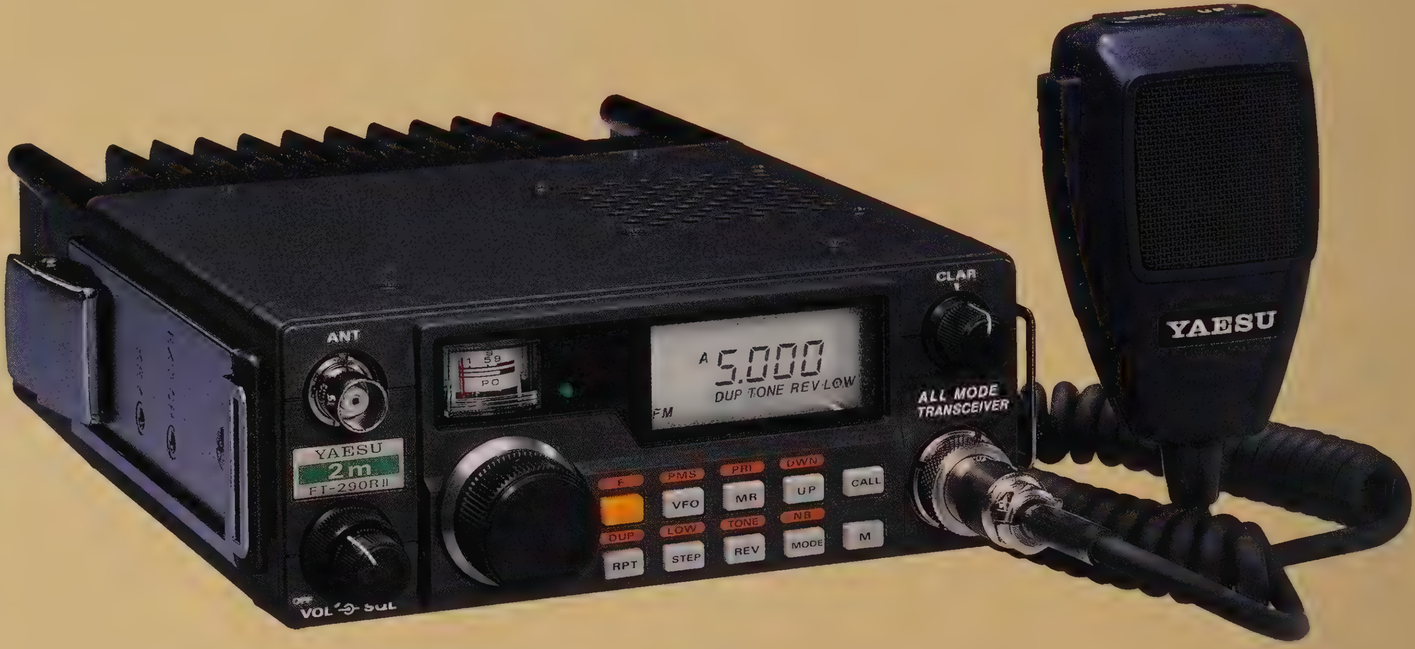
VHF MULTI-PURPOSE TRANSCEIVERS

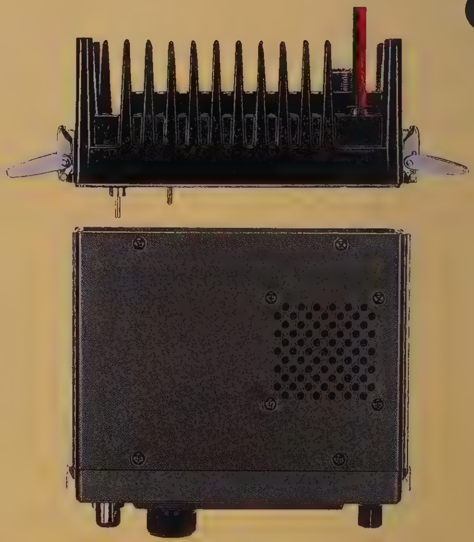
FT-290RII
FT-690RII

CLAR
ALL MODE TRANSCEIVER
DUP TONE REV LOW
PO
YAESU
2m
FT-290RII
PMS
PRI
DWN
CALL
VFO
MR
UP
NB
M
LOW
TONE
MODE
DUP
STEP
REV
RPT
MIC
OFF
VOL
SQL
YAESU

YAESU

FT-290RII/FT-690RII Al





Perfect Portables

With the clip-on FBA-8 Battery Case* and nine 'C'-size dry cells or Ni-Cds, the FT-290R II and FT-690R II as shoulder-carried portables provide extra high performance and 2.5W output for many hours after handhelds have eaten up their batteries. The set of choice for serious emergency field operations.

Convenient Multi-mode Mobiles

The 25-watt, 2m FL-2025 and 10-watt, 6m FL-6020 linear power amplifiers* mounted in the MMB-31 mobile bracket turn the FT-290R II and FT-690R II into super compact multi-mode mobiles. The main transceiver body can be slid into and out of the bracket/amplifier combination, for instant installation and portable conversion.

Compact Base Stations

With a base station AC power supply, the FL-2025 and FL-6020 clip on to the FT-290R II and FT-690R II to make ideal full power base stations, without taking up the space of larger sets with less capability.

* FBA-8 and FL-2025 or FL-6020 may be optional.

Full-Feature Synthesized FM Performance

Special features for convenient FM operation include three selectable FM-channelized tuning/scanning steps plus 1 MHz giant steps, analog S-meter and PO meter, and full functions for operation through repeaters, such as push button reverse split and an optional Tone Burst generator or FTS-7 Tone Squelch Unit.

Mode-Specific Features for SSB and CW

Selectable SSB and CW tuning/scanning steps of 25/100/2500 Hz are provided, along with 100 kHz giant steps. Semi break-in keying and sidetone are provided for CW, while the all-mode noise blanker and receiver clarifier control make for comfortable SSB and CW VHF DXing.

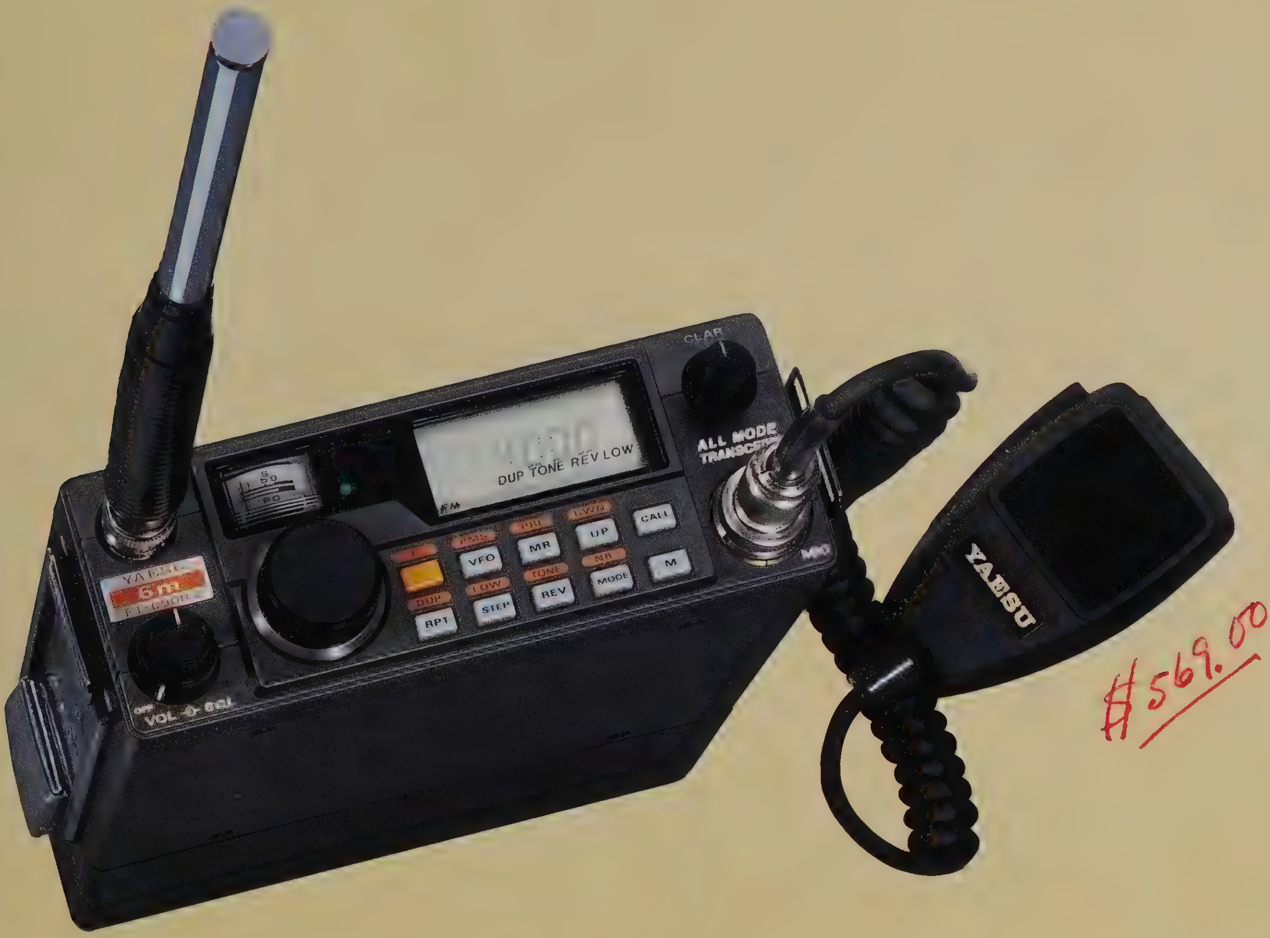
Rugged, Light-weight Design

The light weight die-cast chassis and chip component construction make these sets tough, for reliable operation under really rough portable and mobile conditions, yet small and light enough to tote around comfortably all day long.

Simple, Full-Feature Operation

Just three knobs and 10 keys make these sets really easy to learn and easy to use, while the latest microprocessor technology ensures that you have all modern features you might need: like ten memories holding mode, simplex or split (repeater) frequencies and CTCSS (subaudible) tone status (with optional FTS-7); two independent VFOs, priority and full or limited band scanning, one-touch reverse split, and all mode squelch. The analog meter shows received signal strength, and relative transmitter power output.

ode multi-purpose transceivers



$569.00

ACCESSORIES

		Notes
FP-80A	AC Power Supply	(1)
FBA-8	Battery Case for 9 'C' cells	(2, 9, 10)
FL-2025	25W 2m Linear Amp (FT-290R II)	(2, 3)
FL-6020	10W 6m Linear Amp (FT-690R II)	(2, 3)
FP-700	AC Power Supply for FL-2025	(1)
FTE-2	1750 Hz Tone Burst Generator	(4, 5)
FTS-7	CTCSS Tone Squelch Unit	(5, 6)
MH-10E8	Scanning Microphone	(7)
MH-10F8	Scanning Speaker/Microphone	(7)

		Notes
MH-15C8	Scanning DTMF Keypad Microphone	(7)
YHA-14	Rubber Flex Antenna for FT-290R II	
YHA-6	Telescoping Whip Antenna for FT-690R II	
NC-26B/C/D	Charger for FBA-8 & 9 Ni-Cds	(8, 9)
MMB-31	Mobile Mounting Bracket	
CSC-19	Soft Case	
YH-1/SB-10	Headset/PTT Switch Unit	

Some items are supplied as standard accessories.

Notes:

(1) Wired for 117, 220 or 234 VAC operation according to local requirements.
(2) Battery and Linear Amp cannot both be connected at the same time.
(3) Requires separate DC power supply.
(4) Installed as standard in all except A versions.
(5) FTE-2 and FTS-7 cannot be installed concurrently.
(6) DIP switch programmable.
(7) One microphone may be supplied as standard.
(8) Charger suffix indicates AC line voltage; charger cannot be altered for different voltages.
(9) NC-26 only for use with FBA-8 to charge Ni-Cd batteries.
(10) Batteries not included.

FROM:

TO:

STAMP
HERE

SPECIFICATIONS

General

Frequency range:
FT-690R II: 50–54 MHz
FT-290R II: per local requirements (see Model Chart)
Emission types: FM, SSB (LSB, USB), CW
Channel steps:
FT-690R II: SSB/CW: 25/100/2500 Hz
FM: 5/10/20 kHz
FT-290R II: (see Model Chart)
Antenna: BNC jack
FT-690R II: YHA-6 telescoping whip
FT-290R II: YHA-14 rubber duck
Supply voltage: 8–15.8 VDC
Supply current (@13.8V):
Receive: approx 80mA
Transmit: approx 900mA (2.5W RF)
Case size (WHD): 150 x 57 x 194mm
Weight: 1.2 kg (less battery pack or amplifier)

FT-290R II Model Chart

Vers.	Frequency range (MHz)	FM Steps (kHz)	Burst tone (Hz)
A1	144 – 148	5/10/20	n/a
B	144 – 146	12.5/25/50	1750
C1	144 – 148	12.5/25/50	1750
D	144 – 146	5/10/20	1750
E1	144 – 148	5/10/20	1750

All versions have 25/100/2500 Hz tuning steps for SSB & CW.

Receiver

Circuit type:
SSB & CW: Single conversion
FM: Double conversion
First IF: 13.9885 MHz
Second (FM) IF: 455 kHz
Sensitivity:
SSB & CW: 0.2 μV for 10 dB SN
FM: 0.25 μV for 12 dB SINAD
Image rejection: better than 60 dB
IF rejection: better than 70 dB
Selectivity (–6/–60 dB):
SSB & CW: 2.4/5.2 kHz
FM: 12/25 kHz
Audio Output: 1W into 8 ohms @10% THD
Ext Speaker Imped.: 4–16 ohms

Transmitter

Input power: 6W @13.8V (2.5W output)
Modulation type:
SSB: balanced, filtered
FM: variable reactance
Deviation (FM): ± 5 kHz
Carrier suppression: better than 40 dB
Unwanted sideband suppression: better than 40 dB
Spurious response: –60 dB
Microphone: 400 ohms, dynamic
Frequency stability (@25°C):
First 30 min.: ±300 Hz
After 30 min.: ±50 Hz

Specifications subject to change without notice or obligatio

YAESU MUSEN CO.,LTD.
C.P.O. BOX 1500,
TOKYO, JAPAN

YAESU

YAESU U.S.A.
17210 Edwards Rd.
Cerritos, California 90701
U.S.A.

Printed in Japan
B9200035

KENWOOD

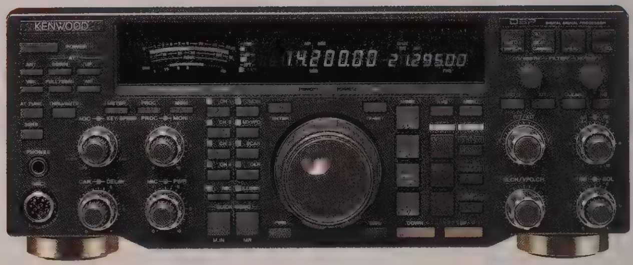
KENWOOD
14200000
14505000

GENERAL CATALOG

AMATEUR RADIO EQUIPMENT 2001

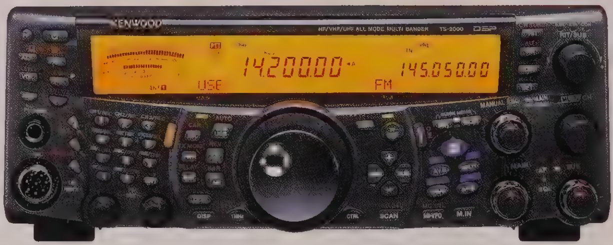
KENWOOD
146.970
448.52

1:WD6DJY
DM13AT
30.1mi
KENWOOD
Dual



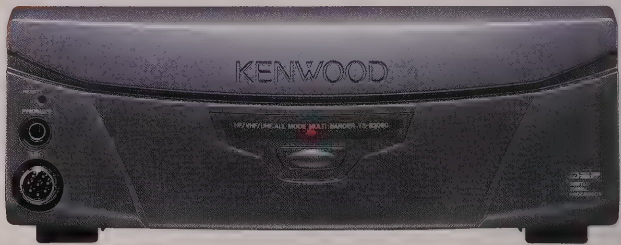
TS-870S

• 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver •IF-stage DSP (Digital Signal Processing) • DSP filters & noise reduction • Windows® control software supplied • Built-in K1 LogiKey • Built-in automatic antenna tuner • Programmable function keys



TS-2000/2000X

• All-mode multibander: HF/50/144/440MHz (+ 1200MHz[*1] with optional UT-20[*2]) in one compact rig offering up to 100W output (440MHz: 50 watts/1200MHz: 10 watts) • Dual-channel watch (sub 144/440MHz FM/AM receiver) • IF-DSP: main band (FM: AF-DSP) + AF-DSP: sub band • IF Auto Notch & AGC • AF DSP Beat Cancel, Manual Beat Cancel, NR, CW Auto Tune & TX audio shaping • Built-in TCXO • DX cluster (Packet cluster) tune • Sky Command System II Plus • 1200/9600bps simple TNC for DX cluster & Sky Command System II Plus • Satellite Communications (HF to 1200MHz: ALL MODE) • 300 memory channels (plus 1 call channel for each band) • Automatic antenna tuner (1.9-50MHz) • Antenna terminal for HF low-band RX • Programmable function keys • Transverter • Auto simplex checker • Auto repeater offset • Backlit front keys • ARCP-2000 radio control software (option) • Optional RC-2000 mobile controller available for mobile use



TS-B2000

• All-mode multibander: HF/50/144/440MHz (+ 1200MHz with optional UT-20[*2]) in one compact rig offering up to 100W output (440MHz: 50 watts/1200MHz: 10 watts) and ARCP-2000 radio control software (supplied) • Optional RC-2000 mobile controller available for mobile use • Dual-channel watch (sub 144/440MHz FM/AM receiver)• IF-DSP: main band (FM: AF-DSP) + AF-DSP: sub band • IF Auto Notch & AGC • AF DSP Beat Cancel, Manual Beat Cancel, NR, CW Auto Tune & TX audio shaping • Built-in TCXO • DX cluster (Packet cluster) tune • Sky Command System II Plus • 1200/9600bps simple TNC for DX cluster & Sky Command System II Plus • Satellite Communications (HF to 1200MHz: ALL MODE) • 300 memory channels (plus 1 call channel for each band) • Automatic antenna tuner (1.9-50MHz) • Antenna terminal for HF low-band RX • Transverter • Auto simplex checker • Auto repeater offset

[*1] Built-in for TS-2000X [*2] Service center installation only. Contact an authorized dealer for details.

HF /All-Mode Transceivers

	TS-2000/TS-2000X/TS-B2000		TS-870S
Transmitter Frequency Range*	Main: 160, 80, 40, 30, 20, 17, 15, 12, 10, 6, 2 meter bands, 70, 23 (TS-2000X only) cm bands	Sub: 2 meter band, 70cm band	160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands
Receiver Frequency Range	Main: (0.03) 0.5 ~ 30 MHz, (30) 50 ~ 54 (60) MHz, (142) 144 ~ 148 (152) , (420) 430 ~ 450 MHz, 1240 ~ 1300 MHz (TS-2000X only)	Sub: (118) 144 ~ 148(174) MHz, (220) 438 ~ 450 (512) MHz *Figures in parenthesis ( ) indicate VFO coverage range*	100 kHz ~ 30 MHz
Mode	A1A (CW), J3E (SSB), A3E (AM), F3E (FM), F1D (FSK), F2D		J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)
Output Power (without antenna tuner)	SSB/CW/FM/FSK=100W, AM=25W (HF, 6m, 2m), SSB/CW/FM/FSK=50W, AM=12.5W (70cm) SSB/CW/FM/FSK=10W, AM=2.5W (23cm)		SSB/CW/FM/FSK: 100 W, AM: 25 W
Selectivity	Main: SSB (Low: 300 Hz, Hi: 2600 Hz) More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (Low:100 Hz, Hi:3000 Hz) More than 6.0 kHz (-6 dB), Less than 12.0 kHz (-50 dB) FM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB) FM (Narrow) More than 8.0 kHz (-6 dB), Less than 20.0 kHz (-50 dB)	Sub: AM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB) FM More than 12.0 kHz (-6 dB), Less than 25.0 kHz (-50 dB)	SSB: 2.3 kHz (-6 dB), 3.3 kHz (-60 dB) CW: 200 Hz (-6 dB), 450 Hz (-60 dB) FSK: 500 Hz (-6 dB), 1.0 kHz (-60 dB) AM: 9 kHz (-6 dB), 12 kHz (-60 dB) FM: 14 kHz (-6 dB), 18 kHz (-60 dB)
Sensitivity [at 10 dB (S/N)] (0 dBu = 1 µV)	Main: SSB/CW/FSK Less than 4 µV (500 kHz ~ 1.705 MHz), Less than 0.2 µV (1.705 ~ 24.5 MHz), Less than 0.13 µV (24.5 ~ 30 MHz), Less than 0.13 µV (50 ~ 54 MHz), Less than 0.16 µV (144 ~ 148 MHz), Less than 0.11 µV (430 ~ 450 MHz), Less than 0.11 µV (1240 ~ 1300MHz), AM Less than 31.6 µV (500 kHz ~ 1.705 MHz), Less than 2 µV (1.705 ~ 24.5 MHz), Less than 1.3 µV (24.5 ~ 30 MHz), Less than 1.3 µV (50 ~ 54 MHz), Less than 1.4 µV (144 ~ 148 MHz), Less than 1.0 µV (430 ~ 450 MHz), Less than 1.0 µV (1240 ~ 1300MHz)	Main (continued): FM (12 dB SINAD) Less than 0.22 µV (28 ~ 30 MHz), Less than 0.22 µV (50 ~ 54 MHz), Less than 0.25 µV (144 ~ 148 MHz), Less than 0.18 µV (430 ~ 450 MHz), Less than 0.18 µV (1240 ~ 1300MHz) Sub: AM Less than 2.25 µV (144 ~ 148 MHz), Less than 1.55 µV (438 ~ 450 MHz) FM (12 dB SINAD) Less than 0.40 µV (144 ~ 148 MHz), Less than 0.28 µV (438 ~ 450 MHz)	SSB/CW/FSK: Less than 1 µV (100 ~ 500 kHz), 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 28 MHz), 0.13 µV (28 ~ 30 MHz) AM: Less than 2 µV (100 ~ 500 kHz), 31.6 µV (500 kHz ~ 1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 2 µV (24.5 ~ 28 MHz), 2 µV (28 ~ 30 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz)
Dimensions, projections not included (W x H x D)	270 x 96 x 317 mm (TS-2000/TS-2000X),270 x 96 x 317 mm (TS-B2000) (10-5/8 x 3-3/4 x 12-1/2 inch) (10-5/8 x 3-3/4 x 12-1/2 inch)		330 x 120 x 334 mm (12.99 x 4.72 x 13.15 inch)

*Specifications are guaranteed for amateur bands

TS-570D(G)

• 160m to 10m amateur band operation, 500kHz to 30MHz general coverage receiver • 16-bit AF-stage DSP (Digital Signal Processing) • Digital filtering with 3 new CW DSP filters • Adjustable TX sound quality & NR1 noise reduction system • World's first CW auto tune • Built-in preset auto antenna tuner • Programmable function keys • Mobile/fixed station size • Free RCP-2 control software available on the Internet (TS-570D only)

TS-570S(G)

• 160m to 10m plus 6m amateur band operation, 500kHz to 30MHz plus 50 to 54MHz general coverage receiver • 100-watt output on all bands (SSB/CW/FM/FSK) • 16-bit AF-stage DSP (Digital Signal Processing) • Digital filtering with 3 new CW DSP filters • Adjustable TX sound quality & NR1 noise reduction system • World's first CW auto tune • Built-in preset auto antenna tuner • Programmable function keys • Mobile/fixed station size • Free RCP-2 control software available on the Internet (TS-570S only)

TS-50S

• Super-compact, 100-watt, 160m to 10m transceiver, 500kHz to 30MHz general coverage receiver • DDS (Direct Digital Synthesizer) with "fuzzy logic" control • AIP system • 100 memory channels • CW reverse • Menu system

VISUAL COMMUNICATOR

VC-H1

• Portable SSTV unit • 1/4- inch, 270,000-pixel CCD camera • 360-degree rotatable and detachable camera head • 1.8-inch TFT color LCD monitor • Up to 10-picture memory • Built-in microphone and speaker • Connect to a Kenwood handheld, mobile or HF transceiver with an optional cable • Computer connectivity with an optional connection kit (KCT-24S) • Power supply: AA alkaline batteries (4)

TS-570D(G)	TS-570S(G)	TS-50S
160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10, 6 meter amateur bands	160, 80, 40, 30, 20, 17, 15, 12, 10 meter amateur bands
500 kHz ~ 30 MHz	500 kHz ~ 30 MHz, 50 ~ 54 MHz	500 kHz ~ 30 MHz
J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F1D (FSK), F3E (FM), A3E (AM)	J3E (SSB), A1A (CW), F3E (FM), A3E (AM)
SSB/CW/FM/FSK: 100 W, AM: 25 W	SSB/CW/FM/FSK: 100 W, AM: 25 W	SSB/CW/FM: 100 W, AM: 25 W
SSB/CW/FSK: More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (wide mode): More than 4 kHz (-6 dB), Less than 20 kHz (-50 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)	SSB/CW/FSK: More than 2.2 kHz (-6 dB), Less than 4.4 kHz (-60 dB) AM (wide mode): More than 4 kHz (-6 dB), Less than 20 kHz (-50 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)	SSB/CW: More than 2.2 kHz (-6 dB), Less than 4.8 kHz (-60 dB) AM: More than 5 kHz (-6 dB), Less than 40 kHz (-60 dB) FM: More than 12 kHz (-6 dB), Less than 25 kHz (-50 dB)
SSB/CW/FSK: Less than only. 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 30 MHz) AM: Less than 31.16 µV (500 kHz ~1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 1.3 µV (24.5 ~ 30 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz)	SSB/CW/FSK: Less than 4 µV (500 kHz ~ 1.705 MHz), 0.2 µV (1.705 ~ 24.5 MHz), 0.13 µV (24.5 ~ 30 MHz), 0.13 µV (50 ~ 54 MHz) AM: Less than 31.16 µV (500 kHz ~1.705 MHz), 2 µV (1.705 ~ 24.5 MHz), 1.3 µV (24.5 ~ 30 MHz), 1.3 µV (50 ~ 54 MHz) FM (12 dB SINAD): Less than 0.25 µV (28 ~ 30 MHz), 0.25 µV (50 ~ 54 MHz)	SSB/CW: Less than 0.25 µV (500 kHz ~ 1.5 MHz), 0.35 µV (1.5 ~ 1.7 MHz), 0.25 µV (1.7 ~ 30 MHz) AM: Less than 2.5 µV (500 kHz ~ 1.5 MHz), 3.5 µV (1.5 ~ 1.7 MHz), 2.5 µV (1.7 ~ 30 MHz) FM (12 dB SINAD): Less than 0.5 µV (28 ~ 30 MHz)
270 x 96 x 271 mm (10.63 x 3.78 x 10.67 inch)	270 x 96 x 271 mm (10.63 x 3.78 x 10.67 inch)	179 x 60 x 233 mm (7.06 x 2.38 x 9.12 inch)

Visual Communicator

	VC-H1
Terminals	Data I/O (for transceiver), Video in, Video out, COM (for computer), DC IN (6.0V)
CCD camera	1/4" CCD (270,000 pixels), Resolution: 512 x 492 pixels f = 4.6m/m, Focus: 50 cm ~ ∞ (19.7" ~ ∞), Aperture: auto, White balance: auto
Monitor	1.8" TFT color LCD
Dimensions, projections not included (W x H x D)	62 x 160 x 30 mm (2.4 x 6.3 x 1.2 inch)

KENWOOD
FM DUAL BANDER TM-D700
146.970
448.525

TM-D700A

• 144MHz/440MHz dual-band operation • Dual receive on same band • Extra-large multifunction display • Built-in 1200/9600bps TNC compatible with AX.25 protocol • APRS® capability • Kenwood Skycommand System (KSS) II • VC-H1 connectivity (compatible with FAST FM mode) • DX cluster monitoring • Built-in DCS, CTCSS & 1750 tone burst • PC programmable • Cross-band & fixed-band repeater operation • Audible key operation and call sign announcement (requires VS-3) • Microphone with large backlit keys

1800
146.970
448.525

TM-742A(D)

• 144MHz/440MHz dual-band operation • Four band options to choose for tri-band operation: UT-28S, 28MHz, 50W; UT-50S, 50MHz, 50W; UT-220S, 220MHz, 25W; and UT-1200, 1.2GHz, 10W • Dual/triple receive • Microphone with large backlit keys • 101 memory channels per band • Detachable display and control panels (opt.)

401
146.970
224.980

TM-642A(D)

• 144MHz/220MHz dual-band operation • Four band options to choose for tri-band operation: UT-28S, 28MHz, 50W; UT-50S, 50MHz, 50W; UT-440S, 440MHz, 35 W; and UT-1200, 1.2GHz, 10W • Dual/triple receive • Microphone with large backlit keys • 101 memory channels per band • Detachable display and control panels (opt.)

KENWOOD FM DUAL BANDER TM-V7

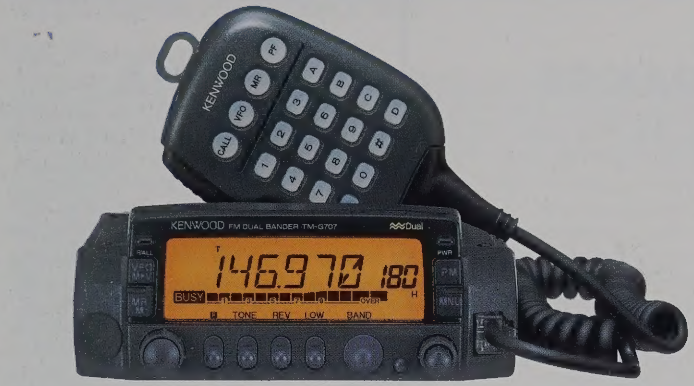
TM-V7A

• 144MHz/440MHz dual-band operation • Dual receive on same band • Large, cool-blue reversible LCD • Quick-release detachable front panel display • "5-in-1" programmable memory • 280 multi-function memory channels • 147-channel visual scan with pause • DTSS selective calling with page • CTCSS encoder/decoder • 1200/9600bps packet terminal • Microphone with large backlit keys • PC programmable

FM Mobile Transceivers

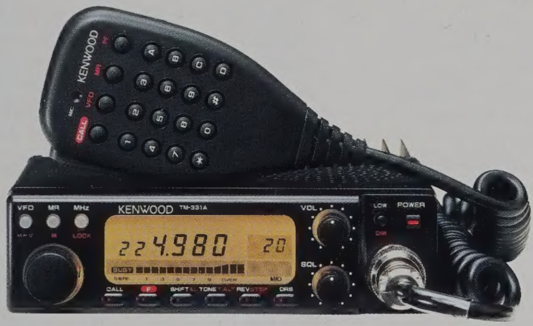
	TM-D700A	TM-742A(D)	TM-642A(D)	TM-V7A
Frequency Range*	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 470 MHz TX (SUB UHF): 430 ~ 450 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 136 ~ 175 MHz 300 ~ 524 MHz 800 ~ 1300 MHz TX (SUB VHF): 144 ~ 148 MHz (excluding cellular + frequencies)	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 438 ~ 450 MHz RX: 410 ~ 470 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 220 MHz: TX: 222 ~ 225 MHz RX: 215 ~ 235 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 410 ~ 470 MHz
Mode	F1D, F2D, F3E, A3E (VHF band)	F3E (FM)), A3E (AM) [RX only]	F3E (FM), A3E (AM) [RX only]	F3E (FM), A3E (AM) [VHF main band RX only]
Current Drain	Transmit: HI (50 W/VHF, 35W/UHF) Less than 11.5 A (VHF), 10.0 A (UHF) MID (10W) Less than 5.5 A (VHF), 6.5 A (UHF) LOW (5W) Less than 4.0 A (VHF), 5.0 A (UHF) Receive: Less than 1.0 A (VHF/UHF)	Transmit: Less than 11.5 A (144 MHz/13.8V DC) Less than 10 A (440 MHz /13.8V DC) Receive: Less than 1.2 A (13.8V DC)	Transmit: Less than 11.5 A (144 MHz/13.8V DC) Less than 7 A (220 MHz /13.8V DC) Receive: Less than 1.2 A (13.8V DC)	Transmit: Less than 11 A (144 MHz) Less than 10 A (440 MHz) Receive: Less than 1 A
Operating Temperature	-20 °C~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)
RF Output Power	144 MHz: HI = 50 W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 440 MHz: HI = 35W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W LO = 5W approx. 220 MHz: HI = 25W MID = 10W LO = 5W approx.	144 MHz: HI = 50W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.
Spurious Radiation	Less than –60 dB	Less than -60 dB	Less than -60 dB	Less than -60 dB
Selectivity	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	Less than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	Less than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)
Sensitivity (12 dB SINAD)	Less than 0.16 µV (VHF/UHF)	Less than 0.16 µV	Less than 0.16 µV (144 MHz)/0.18 µV (220 MHz)	Less than 0.16 µV
Squelch Sensitivity	Less than 0.1 µV (VHF/UHF)	Less than 0.1 µV	Less than 0.1 µV	Less than 0.1 µV
Audio Output Level	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)
External Speaker Impedance		8 Ω	8 Ω	8 Ω
Microphone Impedance		2 kΩ	2 kΩ	600 Ω
Dimensions (W x H x D) {projections not included}	140 x 40 x 195 mm [Body] (5.51 x 1.58 x 7.68 inch) 140 x 60 x 33.3 mm [Panel] (5.51 x 2.36 x 1.31 inch)	150 x 50 x 175 mm (5.91 x 1.97 x 6.89 inch)	150 x 50 x 175 mm (5.91 x 1.97 x 6.89 inch)	140 x 40 x 189 mm (5.52 x 1.58 x 7.45 inch)

*Specifications are guaranteed for amateur bands only.



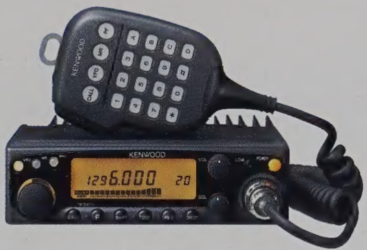
TM-G707A

• 144MHz/440MHz dual-band operation • Wide band receive • High-visibility amber LCD showing up to 7 large alphanumeric characters • Easy Operation mode • Quick-release detachable front panel display • "5-in-1" programmable memory • 180 multi-function memory channels • Memory Name function • CTCSS encoder/decoder • 1200/9600bps packet terminal • Microphone with large backlit keys • PC programmable • Excellent intermodulation rejection



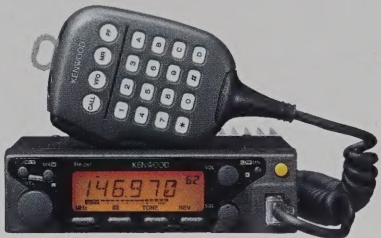
TM-331A

• 220MHz single-band operation • 20 memory channels with multi-scan functions • Auto repeater offset (+ 1.6MHz) • Multi-function microphone supplied



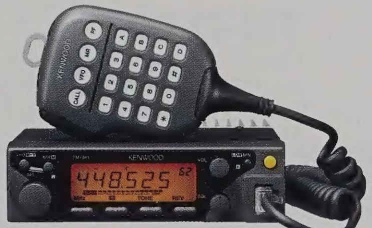
TM-541A

• 1200MHz single-band operation • 10W RF power output • Easy-to-read, easy-to-operate illuminated keys plus large LCD • Microphone with large backlit keys • 20 multi-function memory channels plus call channel • Selectable CTCSS tone encoder (decoder optional) • ALT (Automatic Lock Tuning) function



TM-261A

• 144MHz single-band operation • 62 multi-function memory channels with split channel memory • Meets MIL-STD for vibration and shock • Memory Name function with 6 digits Alphanumeric Display • Menu system • Selectable CTCSS tone encoder • Microphone with large backlit keys • Wireless cloning function

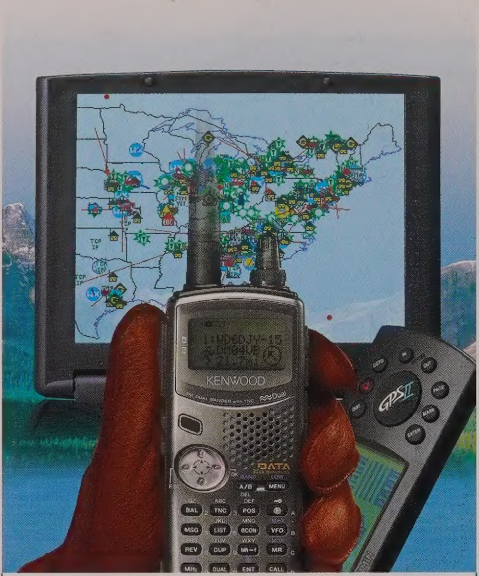


TM-461A

• 440MHz single-band operation • 62 multi-function memory channels with split channel memory • Meets MIL-STD for vibration and shock • Memory Name function with 6 digits Alphanumeric Display • Menu system • Selectable CTCSS tone encoder • Microphone with large backlit keys • Wireless cloning function

TM-G707A	TM-331A	TM-541A	TM-261A	TM-461A
144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 410 ~ 524 MHz	220 MHz: TX: 222 ~ 225 MHz RX: 215 ~ 230 MHz	1200 MHz: 1240 ~ 1300 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz	440 MHz: TX: 438 ~ 450 MHz RX: 400 ~ 470 MHz
F3E (FM)	F3E (FM)	F3E (FM)	F3E (FM), A3E (AM) [RX only]	F3E (FM)
Transmit: HI Less than 11 A (144 MHz) Less than 10 A (440 MHz) MID Less than 5.5 A (144 MHz) Less than 6.5 A (440 MHz) LO Less than 4 A (144 MHz) Less than 5 A (440 MHz) Receive: Less than 1 A	Transmit: Less than 10 A Receive: Less than 600 mA	Transmit: HI Less than 6 A Receive: No signal Less than 600 mA	Transmit: Less than 11 A Receive: Less than 600 mA	Transmit: Less than 10 A Receive: Less t han 600 mA
-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)	-20 °C ~ +60 °C (-4°F ~ +140°F)
144 MHz: HI = 50W MID = 10W approx. LO = 5W approx. 440 MHz: HI = 35W MID = 10W approx. LO = 5W approx.	HI = 25W MID = 10W LO = 5W approx.	HI = 10W LO = 1W approx.	HI = 50W MID = 10W LO = 5W approx.	HI = 35W MID = 10W LO = 5W approx.
Less than -60 dB	Less than -60 dB	Less than -50 dB	Less than -60 dB	Less than -60 dB
More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 24 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 36 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)
Less than 0.22 µV (VHF)/0.16 µV (UHF)	Less than 0.16 µV	Less than 0.16 µV	Less than 0.16 µV	Less than 0.16 µV
Less than 0.11 µV (VHF)/0.1 µV (UHF)	Less than 0.1 µV	Less than 0.1 µV	Less than 0.1 µV	Less than 0.1 µV
More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)	More than 2.0W (at 8 Ω, 5% distortion)
8 Ω	8 Ω	8 Ω	8 Ω	8 Ω
600 Ω	500 ~ 600 Ω	500 ~ 600 Ω	600 Ω	600 Ω
140 x 40 x 189 mm (5.52 x 1.58 x 7.45 inch)	140 x 40 x 160 mm (5.51 x 1.57 x 6.30 inch)	140 x 40 x 160 mm (5.51 x 1.57 x 6.30 inch)	140 x 40 x 160.5 mm (5.51 x 1.57 x 6.31 inch)	140 x 40 x 160.5 mm (5.51 x 1.57 x 6.31 inch)

FM HANDHELD TRANSCEIVERS



TH-D7A

• 144/440MHz dual-band operation • DATA COMMUNICATOR; built-in 1200/9600bps TNC, APRS operation, VC-H1 control • Kenwood Sky Command System (KSS) II for remote control of a TS-570S/D(G) or TS-870S • TM-742A(D)/TM-V7A DTMF remote control • Dual receive on same band V + V (VHF only) for both voice and data* • Large dot-matrix LCD (12 digits x 3 lines), multi-scroll key, menu mode • 200 memory channels with 8-character memory name input • Backlit keys • Built-in CTCSS • DTMF memory (10 ch. up to 16 digits) • MIL-STD 810C/D/E water resistance • High-gain dual band antenna

* Not applicable for dual receive of data and data.

TH-79AKSS

• 144/440MHz dual-band operation • Kenwood Sky Command System to control a TS-570S/D(G) • MOS FET power module • Dot-matrix LCD, guide function & menu system for easy operation • Dual receive on same band • Wide-range flexible antenna • 82 non-volatile memory channels in E^{2}PROM • ID memory & DTMF memory • Memory channel lockout • Built-in CTCSS encode/decode • Cross-band repeater function • Wireless cloning function

TH-22AT

• 144MHz single-band operation • MOS FET power module • Built-in Luminescent DTMF keypad • 40 memory channels in E^{2}PROM (plus 1 call channel) • Multiple scan functions (VFO, call & memory) • Dual scan stop modes (CO & TO) • Wireless cloning function

TH-42AT

• 440MHz single-band operation • MOS FET power module • Built-in Luminescent DTMF keypad • 40 memory channels in E^{2}PROM (plus 1 call channel) • Multiple scan functions (VFO, call & memory) • Dual scan stop modes (CO & TO) • Wireless cloning function

TH-G71A

• 144/440MHz dual-band operation • 6W (VHF), 5.5W (UHF) at 13.8V DC • PC programmable • 200 memory channels with alphanumeric display • MIL-STD 810E (rain & shock) • CTCSS tone scan • Wide-range coverage (incl. aircraft receive) • DTMF memory (10 ch. up to 16 digits) • Multiple scan modes • Key illumination & backlit display • High-performance antenna • Selectable HI/LOW/EL power output • TM-V7A DTMF remote control • Excellent intermodulation rejection • Powerful audio output

UBZ-LH14
FreeTalk®

• 14 channels • 38 talk groups (CTCSS) • CORDS (Communication Range Detection System) • Privacy Talk • Auto Channel Select • Large display with icons • Push-button ease-of-operation • Available in Platinum, Yellow, Black • Dimensions, projections not included (W x H x D): 2-1/4 x 4-1/8 x 1.0 in.

UBZ-GM14
FreeTalk® WX

• 14 FRS + 10 weather channels • 38 talk groups (CTCSS) • 500mW output power • Automatic backlit LCD display • Audible low-battery warning tone • Dimensions, projections not included (W x H x D): 2.24 x 4.25 x 1.34 in.

UBZ-AM14
FreeTalk® EL

• 14 FRS channels • 38 talk groups (CTCSS) • 500mW output power • 32-step digital volume control • Battery saver function • Available in Blue, Black • Dimensions, projections not included (W x H x D): 2.22 x 3.73 x 1.19 in.

FM Handheld Transceivers

	TH-D7A	TH-79AKSS	TH-G71A	TH-22AT	TH-42AT	UBZ-LH14/GM14/AM14
Frequency Range*	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 400 ~ 480 MHz 144 ~ 148 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz, 438 ~ 450 MHz 440 MHz: TX: 438 ~ 450 MHz RX: 136 ~ 174 MHz, 438 ~ 450 MHz	144 MHz: TX: 144 ~ 148 MHz RX: 118 ~ 174 MHz 440 MHz: TX: 430 ~ 450 MHz RX: 400 ~ 470 MHz	144 MHz: TX: 144 ~ 147.995 MHz RX: 136 ~ 173.995 MHz	440 MHz: TX: 438 ~ 449.995 MHz RX: 438 ~ 449.995 MHz	462.5625 ~ 467.7125 MHz
Mode	F1D, F2D, F3E (FM) A3E (AM: RX 118~136 MHz only)	F3E (FM) A3E (AM: RX 118~136 MHz only)	F3E (FM)	F3E (FM)	F3E (FM)	F3E (FM)
RF Output Power	HI: 6W approx. (13.8V DC, 144 MHz) 5.5W approx. (13.8V DC, 440 MHz) 5W approx. (PB-39) 2.5W approx. (144 MHz, PB-38/BT-11) 2.2W approx. (440 MHz, PB-38/BT-11) LO: 0.5W approx. EL: 50mW approx.	HI: 5W approx. (13.8V DC/PB-34) 2.7W approx. (144 MHz; PB-32/33) 2.0W approx. (440 MHz; PB-32/33) LO: 0.5W approx. EL: 30mW approx.	HI: 6W approx. (13 .8V DC, 144 MHz) 5.5W approx. (13.8V DC, 440 MHz) 5W approx. (PB-39) 2.5W approx. (144 MHz, PB-38/BT-11) 2.2W approx. (440 MHz, PB-38/BT-11) LO: 0.5W approx. EL: 50mW approx.	HI: 5W approx. (13.8V DC/ PB-34) 3W approx. (PB-32/33) LO: 0.5W approx. EL: 30mW approx.	HI: 5W approx. (13.8V DC/PB-34) 2.5W approx. (PB-32/33) LO: 0.5W approx. EL: 30mW approx.	500 mW
Selectivity	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-60 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	More than 12 kHz (-6 dB) Less than 28 kHz (-40 dB)	
Sensitivity (12 dB SINAD)	Less than 0.18 µV (main band) Less than 0.28 µV (sub band)	Less than 0.16 µV (144 MHz) Less than 0.18 µV (440 MHz) Less than 0.25 µV (sub band)	Less than 0.18 µV	Less than 0.16 µV	Less than 0.18 µV	Less than 0.4 µV
Dimensions, projections not included (W x H x D)	54 x 119.5 x 33.5 mm (2.13 x 4.7 x 1.32 inch) with PB-38	56 x 129.5 x 24.5 mm (2.2 x 5.1 x 1.0 inch) with PB-32	54 x 112 x 33.5 mm (2.13 x 4.4 x 1.32 inch) with PB-38	56 x 116.5 x 24.5 mm (2.2 x 5.7 x 1.0 inch)	56 x 116.5 x 24.5 mm (2.2 x 5.7 x 1.0 inch)	

*Specifications are guaranteed for amateur bands only.

Optional Accessories

HF Transceivers

	ARCP-2000 Radio Control Program	**AT-50** Automatic Antenna Tuner	**DRU-3A** Digital Recording Unit	**HS-5** Deluxe Headphones	**HS-6** Small Headphones	**IF-10D** Interface Unit	**KPS-15** DC Switching Power Supply	**LF-30A** Low-Pass Filter	**MB-430B** Mobile Mount	**MC-43S** Hand Microphone	**MC-47** Multi-Function Microphone (8-pin)	**MC-52DM** Hand Microphone with DTMF
TS-2000/2000X	●		●	●	●		●	●	●	●	●	●
TS-B2000	Supplied		●	●	●		●	●	●	●	●	●
TS-870S				●	●		●	●		●		●
TS-570D(G)			●	●	●		●	●	●	●	●	●
TS-570S(G)			●	●	●		●	●	●	●	●	●
TS-50S	●	●		●*1	●*1	●*2	●	●		●	●	●

	MC-60A Deluxe Desktop Microphone	**MC-80** Desktop Microphone	**MC-90** DSP-Compatible Desktop Microphone	**PG-2Y** DC Cable (4m)	**PG-2Z** DC Cable (2m)	**PG-4M** Control Cable for AT-50 (6m)	**PS-52** Heavy Duty Power Supply (22.5A)	**PS-53** Heavy Duty Power Supply (22.5A)	**RC-2000** Mobile Controller	**SO-2** Superior Stability TCXO	**SP-23** External Speaker	**SP-31** External Speaker
TS-2000/2000X	●	●	●		●			●	●	Built-in*4	●	
TS-B2000	●	●	●		●			●	●	Built-in*4	●	
TS-870S	●	●	●		●		●			●		●
TS-570D(G)	●	●	●		●			●		●	●	
TS-570S(G)	●	●	●		●			●		●	●	
TS-50S	●	●		●	●	●	●*3	●*3		●	●*5	

	SP-50B Mobile Speaker	**UT-20** 1200MHz All-Mode Unit	**VS-2** Voice Synthesizer Unit	**VS-3** Voice Synthesizer Unit	**YG-455CN-1** 250Hz CW Narrow Filter for 455kHz IF	**YK-88C-1** 500Hz CW Filter for 8.83MHz IF	**YK-88CN-1** 270Hz CW Filter for 8.83MHz IF	**YK-88SN-1** 1.8kHz SSB Narrow Filter for 8.83MHz IF	**YK-107C** 500Hz CW Filter
TS-2000/2000X	●	●*6, *7		●					
TS-B2000	●	●*6		●					
TS-870S			●		Built-in IF filter*8	Built-in IF filter*8	Built-in IF filter*8	Built-in IF filter*8	
TS-570D(G)	●			●		●	●	●	
TS-570S(G)	●			●		●	●	●	
TS-50S	●								●

**1 Needs plug-adaptor *2 Works with IF-232C *3 When using AT-50 *4 Of equivalent quality *5 Height does not match *6 Service center installation only. Contact an authorized dealer for details. *7 Built-in for TS-2000X *8 Built-in Digital IF Filter, TS-870S model does not require IF filter options*

FM Mobile Transceivers

	DFK-3 Detachable Front Panel Cable (9.9ft/3m)	**DFK-3C** Detachable Front Panel Cable (9.9ft/3m)	**DFK-4** Detachable Front Panel Kit (13.2ft/4m)	**DFK-4C** Detachable Front Panel Kit (13.2ft/4m)	**DFK-7** Detachable Front Panel Kit (23.1ft/7m)	**DFK-7C** Detachable Front Panel Kit (23.1ft/7m)	**KPS-15** DC Switching Power Supply	**MB-14** Mobile Mount	**MB-201** Mobile Mount	**MC-53DM** Backlit DTMF Microphone	**MC-60A** Deluxe Desktop Microphone	**MC-80** Desktop Microphone
TM-D700A							●			Supplied	Requires MJ-88	Requires MJ-88
TM-742A(D)	●		●		●		●	●		Supplied	Requires MJ-88	Requires MJ-88
TM-642A(D)	●		●		●		●	●		Supplied	Requires MJ-88	Requires MJ-88
TM-V7A		●		●		●	●		●*	Supplied	Requires MJ-88	Requires MJ-88
TM-G707A		●		●		●	●		●*	Supplied	Requires MJ-88	Requires MJ-88
TM-261A							●		●	Supplied	Requires MJ-88	Requires MJ-88
TM-461A							●		●	Supplied	Requires MJ-88	Requires MJ-88
TM-331A							●		●		●	●
TM-541A							●		●		●	●

	MJ-88 Microphone Plug Adapter	**PG-2N** Power Cable	**PG-3B** DC Line Noise Filter	**PG-4S** PC Connection Cable	**PG-4T** VC-H1 Mobile Transceiver Connection Cable	**PG-4X** Extension Cable Kit	**PG-5A** Data Cable	**SP-50B** Mobile Speaker	**TSU-7** CTCSS Unit	**TSU-8** CTCSS Unit	**VC-H1** Interactive Visual Communicator	**VS-3** Voice Synthesizer Unit
TM-D700A	●	●	●		●	●	●	●		Built-in	●	●
TM-742A(D)	●	●	●					●	●			
TM-642A(D)	●	●	●					●	●			
TM-V7A	●	●	●	●	●		●	●		Built-in	●	●
TM-G707A	●	●	●	●	●		●	●		Built-in	●	●
TM-261A	●	●	●					●		●		
TM-461A	●	●	●					●		●		
TM-331A		●	●					●				
TM-541A		●	●					●				

	UT-50S 50MHz FM Unit	**UT-220S** 220MHz FM Unit	**UT-440S** 440MHz FM Unit	**UT-1200** 1200MHz FM Unit
TM-D700A				
TM-742A(D)	●	●		●
TM-642A(D)	●		●	●
TM-V7A				
TM-G707A				
TM-261A				
TM-461A				
TM-331A				
TM-541A				

** Certain restrictions on installation*

Optional Accessories

FM Handheld Transceivers

	BT-9 Battery Case	BT-11 Battery Case	EMC-3 Clip Microphone with Earphone	HMC-3 Headset with VOX/PTT	KSC-8A Compact Charger	KSC-14 Rapid Charger	BC-19 Rapid Charger	PB-32 Standard Battery Pack	PB-33 Long-Life Battery Pack	PB-34 High-Power Battery Pack	PB-38 Standard Battery Pack	PB-39 High-Power Battery Pack
TH-D7A		●	●	●			●				●	●
TH-79AKSS	●		●	●	●	●		●	●	●		
TH-G71A		●	●	●			●				●	●
TH-22AT	●		●	●	●	●		●	●	●		
TH-42AT	●		●	●	●	●		●	●	●		
UBZ-LH14			●	●								
UBZ-GM14			●	●								

	PG-2W DC Cable	PG-3J Filtered Cigar Lighter Cord	PG-4P MCP Interface Cable	PG-4R Sky Command™ Adapter	PG-4V VC-H1 Connection Cable	PG-4W PC Connection Cable (with PC Software & In-depth Manual)	SB-2A Arm Band	SB-3 Neck Strap	SC-41 Soft Case (PB-32)	SC-43 Soft Case (PB-34, 33)	SC-45 Soft Case	SC-47B Nylon Case (Black)
TH-D7A	●	●		●	●	●						●
TH-79AKSS	●	●		●					●	●		
TH-G71A	●	●	●								●	
TH-22AT	●	●										
TH-42AT	●	●										
UBZ-LH14							●	●				
UBZ-GM14												

	SC-47OR Nylon Case (Orange)	SMC-32 Speaker Microphone	SMC-33 Remote Control Speaker Microphone	SMC-34 Speaker Mic with 3 Function Keys & Volume Control	TSU-8 CTCSS Unit	UBC-3 Desktop Charger	UBC-4 Charger	UPB-2 NiCd Battery Pack	USC-5B Soft Case (Black)	USC-5C Soft Case (Camouflage)	USC-5Y Soft Case (Yellow)	USC-8B Nylon Case (Black)
TH-D7A	●	●	●	●	Built-in							
TH-79AKSS		●	●	●	Built-in							
TH-G71A		●	●	●								
TH-22AT		●	●	●	●							
TH-42AT		●	●	●	●							
UBZ-LH14				●		●		●	●	●	●	
UBZ-GM14				●			●	●				●

	VC-H1 Interactive Visual Communicator	WR-2 Water Resistant Bag
TH-D7A	●	●
TH-79AKSS	●	●
TH-G71A	●	
TH-22AT	●	●
TH-42AT	●	●
UBZ-LH14	●	
UBZ-GM14		

Visual Communicator

	KCT-24S PC Connection Kit	PG-4T VC-H1 Mobile Transceiver Connection Cable	PG-4V VC-H1 Connection Cable	SC-46P Protective Case
VC-H1	●	●	●	●

Not all accessories may be available, please contact dealers for details.

The equipment meets or exceeds published specifications.
Specifications are subject to change without notice due to advances in technology.

KENWOOD reserves the right to add or delete models or products without notice to maintain its competitive position in the market.

Products included in this catalog are products that were a part of KENWOOD's product line as of the date of this printing.

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Kenwood Corporation
ISO9001 certification

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